The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

VOL. 24. NO. 35. TULSA, OKLAHOMA, JANUARY 21, 1926

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Crude Output Approaches Low Levels

Highest daily average estimated production week ended May 30, 1925, 2,347,984 bbls. Lowest in 1925, January 3, 1,911,730 bbls.

Discovery of Two New Fields Fails to Shake Optimism. Higher Quotations Soon Almost a Certainty

By Andrew M. Rowley

Highest daily average estimated light oil production in 1925, week ended January 17, 1,525,220 bbls. Lowest July 18, 1,374,173 bbls.

The discovery of two new producing areas in the United States last week—at Seal Beach, Calif., opened by the Marland Oil Company, and Orchard Dome, Fort Bend County, Texas, opened by the Gulf Production Company—failed to shake the optimism regarding the general crude oil situation engendered by the continued decline in production. The output of crude oil is substantially below the 2,000,000-barrel-a-day mark recorded during more than two-thirds of last year while the production of light gravity crude especially desirable for refining and gasoline recovery is fast approaching the low mark of the past few years.

The tight crude market in a number of areas, especially in the Mid-Continent territory, which has caused a material increase in the number of companies paying premiums, together with the fact it is estimated that about 40,000 barrels daily is being withdrawn from storage in Oklahoma and Kansas alone by the larger companies, strengthens the belief it will be impossible much longer to hold posted prices at their present level. An increase in posted quotations for crude within the very near future is almost a certainty.

Aside from the big influence California wields on the general situation, it must be remembered production of crude abroad is increasing and that by May 1 there will be available for shipment to the United States about 30,000 barrels daily of high-grade crude from Colombia. Venezuela is an important factor which must be considered also, as production there will have just as much effect upon conditions in the United States as if the oil were produced in this country. Consumption of petroleum and its products abroad will show increases during this year but it seems probable production will gain more than consumption.

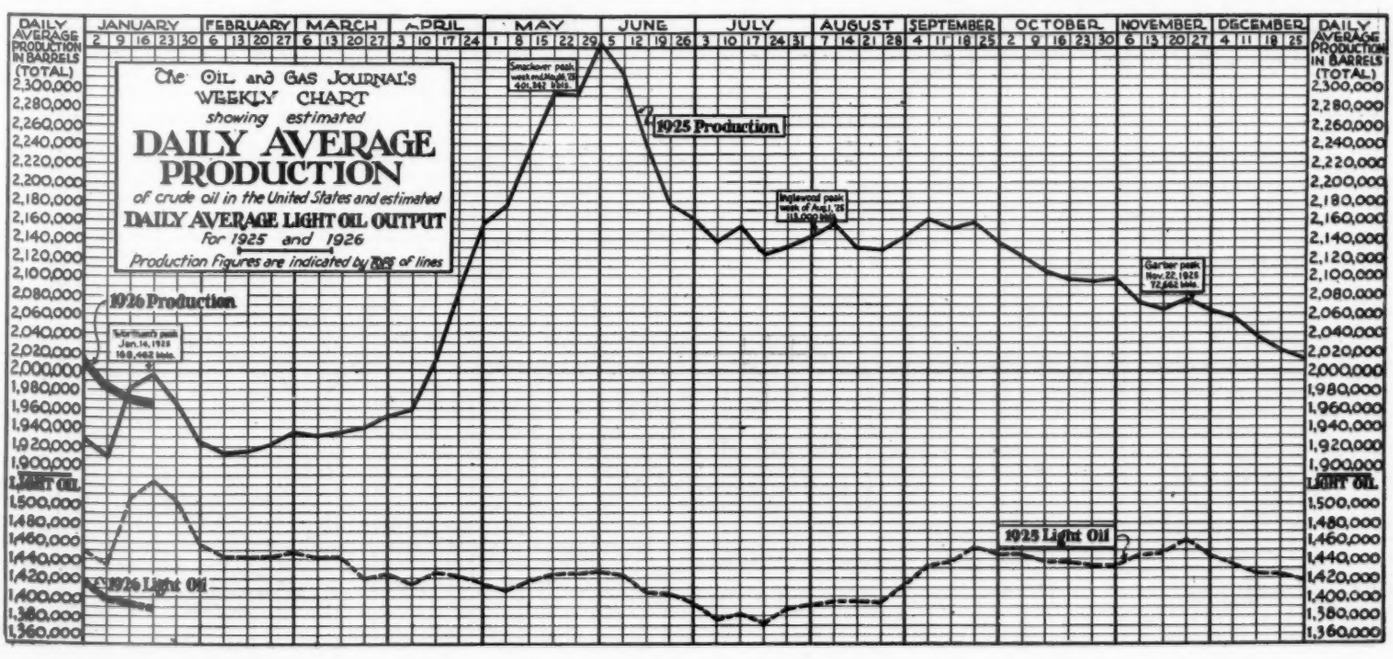
Conditions in the petroleum industry are especially good at this time. This condition has prevailed, however, often before, only to be changed almost over night by the bringing in of a big pool. Anything which can be done to maintain present conditions should have the earnest cooperation of all interested in continued prosperity. While higher prices for crude would benefit a large number of individuals for the time being, the industry as a whole realizes it will be far better for all if present quotations are maintained until there is a real necessity for more production. That necessity does not exist at this time.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity crude oil in the United States for week ended January 16, and a comparison with the previous week follows:

	Jan. 16		Jan. 9	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	45,510	.....	45,640	.....
Burbank	44,465	.....	44,595	.....
Other Osage Fields	32,885	.....	32,945	.....
Cushing and Shamrock	22,630	.....	22,615	.....
Bristow and Eastern Bristow	31,780	.....	31,725	.....
Cromwell	20,540	.....	20,195	.....
Papoose	12,815	.....	13,190	.....
Garber	25,370	.....	28,935	.....
Blackwell-Braman	9,775	.....	9,325	.....
Davenport	21,435	.....	20,295	.....
Thomas	14,510	.....	14,690	.....
Northern Miscellaneous	102,470	.....	102,550	.....
Southern Fields	63,780	.....	62,985	.....
Total Oklahoma	447,965	.....	449,685	.....
North Louisiana	43,365	.....	44,201	.....
Arkansas—				
El Dorado and Calion	7,450	.....	7,795	.....
Smackover Light	19,225	.....	19,410	.....
Smackover Heavy	.....	154,275	.....	153,690
Stephens and Nevada	3,340	.....	3,270	.....
Total Arkansas	30,015	154,275	30,475	153,690
North Central Texas	165,890	.....	168,337	.....
Powell	34,748	.....	35,800	.....
Mexia, Currie, Richland, etc.	19,550	.....	17,945	.....
Wortham	13,100	.....	13,685	.....
Kansas	100,260	.....	99,880	.....
Total Mid-Continent Area	854,893	154,275	860,008	153,690
Gulf Coast	.....	96,220	.....	93,170
Southwest Texas	.....	39,850	.....	39,796
Eastern	99,850	.....	99,800	.....
Rocky Mountain Area	103,451	.....	104,369	.....
California—				
Santa Fe Springs	50,000	.....	50,500	.....
Long Beach	113,000	.....	111,500	.....
Huntington Beach	44,500	.....	45,000	.....
Torrance	5,000	26,500	5,000	26,500
Dominguez	25,000	.....	25,000	.....
Rosecrans	22,500	.....	22,500	.....
Inglewood	27,000	30,000	27,000	33,000
Remainder of State	47,000	231,000	47,000	233,000
Total California	334,000	287,500	333,500	292,500
Total United States	1,392,194	577,845	1,397,677	579,156
Grand Total		1,970,039		1,976,833

→ Total Decrease, 6,794 Bbls.; Light Oil Decrease, 5,483 Bbls. ←



Refined Prices Sag as Exporters Quit

Nearly All Products in Oklahoma Softer but New Activity Expected in the Near Future. Kerosene Continues Strong. Lubricants Steady

By Nell Williams

After a short flurry in export buying of higher gravity gasolines, the Oklahoma (Group 3) refined market was quiet again the past week. There was a fair movement of gasoline from some refiners for domestic consumption but generally the dullness, which has ruled the situation most of the time since early in December, again prevailed.

A few scattered purchases for export also continued to be made, totaling around 2,000,000 gallons out of Oklahoma and North Texas, but these were not to be compared with the substantial demand of the previous week, which caused a marked strengthening in all gasoline prices.

As a result of the reaction to the buying season of the previous week, the edge was taken off refined prices generally with the possible exception of kerosene, which continued scarce and in demand. Higher gravity gasolines also resisted the general weakness but prices on these were being shaded considerably Tuesday.

Although faced with a weak market structure with orders slow and prices on practically all products being cut, refiners on the whole were optimistic, maintaining that fundamentally their position was sound. It was generally felt that exporters still were in the market and that it would be only a short time until large seasonal purchases would be started, not only in higher gravity gasolines but also in the U. S. Motor grade.

However, it was conceded that only substantial buying, either for export or domestic consumption, would prevent additional sagging of markets at this time. Although the majority of Oklahoma refiners declared they were not particularly overburdened with stocks for this time of year, nevertheless, an abundance of gasoline apparently was available at lower prices from other sources.

REFINED MARKET BAROMETER

Declining prices in the Mid-Continent and Middle West areas were the chief development in the general refined situation of the country the past week. Markets in other parts of the country were practically unchanged with a firm undertone. Kerosene was the only refined product which maintained strength in all areas, this being due chiefly to recent export demand. Lubricating oils generally were steady despite a few reductions in Gulf Coast red oils. Gasoline movements were somewhat spotted, the biggest demand being along the Pacific Coast and Atlantic Seaboard. The weakness of fuel oils and gas oil in parts of the Mid-Continent and Middle West was localized there as in other districts these products showed increasing strength. Distillate and furnace oil demand generally was disappointing. Natural gasolines were softer.

Mid-Continent—A generally weak undertone was felt in Mid-Continent refined markets the past week with a few exceptions. Prices on all products generally lower except kerosene and lubricating oils. Movement of all other products slow. Natural gasolines inactive. Export activity subsided.

Atlantic Seaboard—Atlantic seaboard markets unchanged. Gasoline in demand. Kerosene movement better and prices steady. Lubricating oils in strong hands. Advances expected in fuel and gas oils. Exporters marking time.

Pennsylvania—Pennsylvania refined markets quiet. Prices on some products reduced but quotations generally steady. Kerosene firm.

California—Domestic gasoline movements satisfactory but prices unsteady due to continued retail competition. Kerosene improved. Fuel oil and distillates moving in good shape with many export contracts renewed. Lubricant prices unsteady.

Chicago—Demand for all products except kerosene slow. Prices only slightly changed but general situation weak.

Gulf Coast—Red oil prices reduced as demand slackens. Fuel oil stronger.

Less Gasoline on Hand

As for gasoline stocks many refiners the past week pointed out that they had less gasoline on hand than they had had in many months. One of the largest refiners said his company had far less than a month's supply in reserve. This condition was explained as unusual as the company usually planned to have more gasoline on hand than that.

This position was taken by market students as being especially favorable for the Oklahoma refined market as these comparatively low stocks would enable refiners to have ample storage with which to handle any surplus production if market prices became too unfavorable. This season usually is a period during which refiners build up stocks for spring demand so the fact that refiners have been running to storage because of the slow demand cannot be taken as an especially bearish factor.

As for additional buying in the near future refiners are looking chiefly to exporters as it has been proved again that jobbers and other domestic buyers are determined not to stock up in anticipation of later demand and higher prices. This was indicated in the continued slow domestic buying during the export activity when from all indications refined markets were due for greater strength and higher prices.

The weakening and decline of refined markets is unusual at this time of year. Last year, prices began to climb the first week in January, and, with heavy export buying, continued to soar until late in February, reaching the peak of the year on February 23. The fact that in past years, markets advanced at this time might have encouraged domestic buyers to stock up during the recent strengthening of markets in anticipation of further increases the latter part of January and during February but this year there was no apparent move in this direction. This failure of domestic buying to materialize may have been one of the reasons markets weakened again as soon as export activity subsided.

Gasolines and Naphtha

The slowness of demand was felt in all grades of gasoline although the U. S. Motor (58-60 437) gasoline bore the blunt of price declines. This gasoline was quoted freely at 9¾ cents Tuesday and scattered offers began to be made

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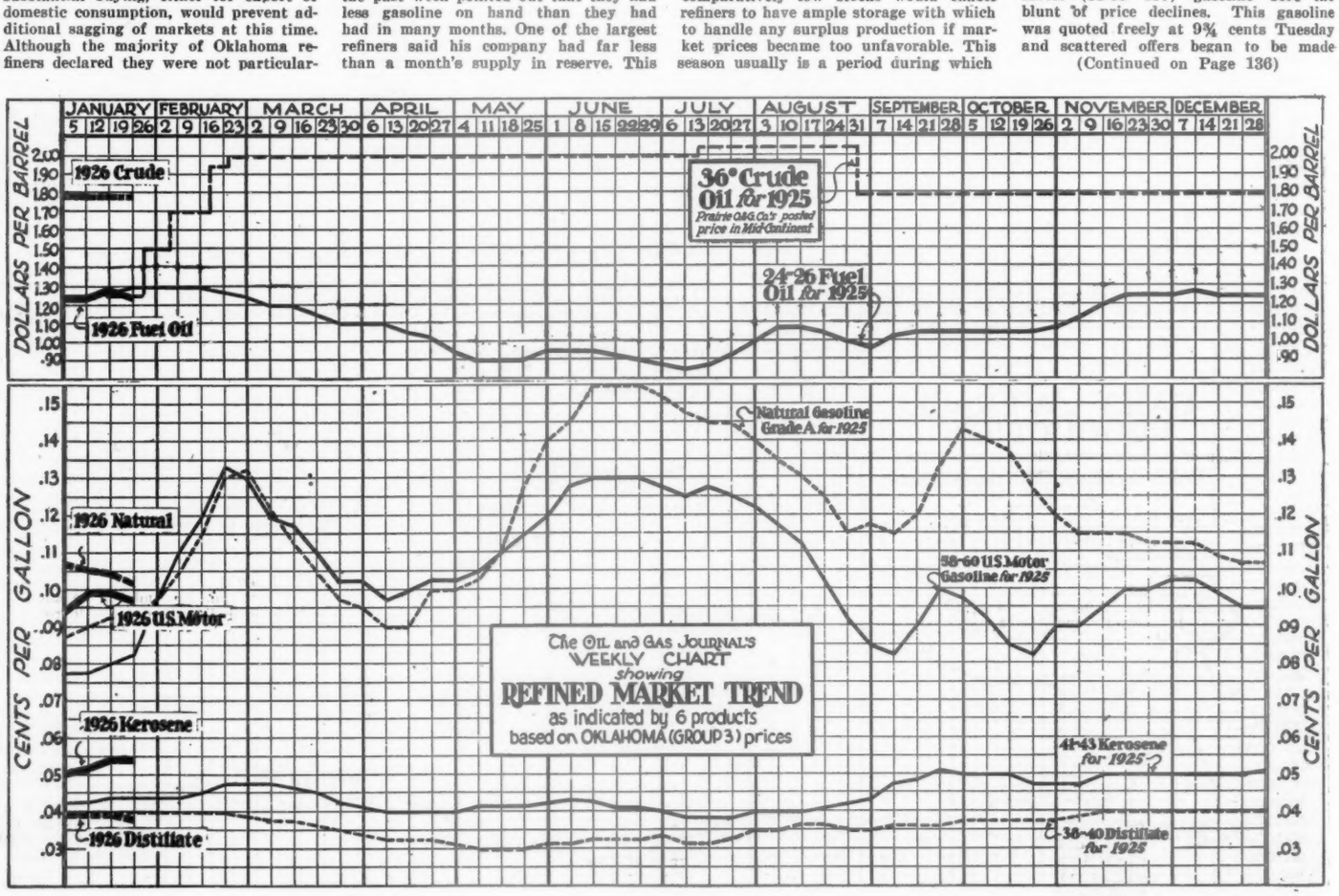
JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER
DOLLARS PER BARREL
1926 Crude
1926 Fuel Oil
36° Crude Oil for 1925
Prairie O&G Co's posted price in Mid-Continent
24-26 Fuel Oil for 1925
CENTS PER GALLON
1926 Natural
1926 U.S. Motor
1926 Kerosene
1926 Distillate
Natural Gasoline Grade A for 1925
58-60 U.S. Motor Gasoline for 1925
41-43 Kerosene for 1925
38-40 Distillate for 1925
The Oil and Gas Journal's WEEKLY CHART showing REFINED MARKET TREND as indicated by 6 products based on OKLAHOMA (GROUP 3) prices

Institute Retains Charles E. Hughes

Former Supreme Court Justice and Secretary of State Will Represent Oil Industry at Conservation Hearings

By L. M. Fanning

LOS ANGELES, Calif., Jan. 20.—The Board of Directors of the American Petroleum Institute announce that Charles Evans Hughes has been retained by the institute to represent it in matters before the Federal Oil Conservation Board.

The purpose of engaging the services of Mr. Hughes may best be stated by Mr. Hughes' own words in the letter below, where he says that he accepts "with the understanding that it is desired that there shall be a cordial and thoroughgoing cooperation with the Federal Oil Conservation Board in order to aid the development of the facts and the appropriate examination of the problems of the industry in the light of both private and public interest."

The selection of Mr. Hughes brings to the work which he has agreed to undertake, a well nigh unparalleled equipment of experience in public concerns and their relation to business and industry. It was because of this special qualification that he was invited to enlist in this highly important task. It is confidently felt that such an examination into all the problems of the industry, and its relations to the public as is assured in view of this cooperation with distinguished members of the Federal Oil Conservation Board, must be productive of large advantage equally to the interest of the public and to that of the industry.

Mr. Hughes' letter follows:

New York, January 8, 1926.

J. Edgar Pew, Esq.,
President, American Petroleum Institute,
250 Park Avenue,
New York City.

My Dear Mr. Pew:

I have considered the proposal, which you made in our recent interview, that I should represent the American Petroleum Institute in connection with the matters before the Federal Oil Conservation Board constituted by the President in December, 1924. It will give me pleasure to undertake this representation with the understanding that it is desired that there shall be a cordial and thoroughgoing cooperation with the Federal Oil Conservation Board in order to aid the development of the facts and the appropriate examination of the problems of the industry in the light of both private and public interest. It seems to me that such an impartial inquiry, conducted by men so eminently competent and disinterested as are the members of the Federal Oil Conservation Board, should be welcomed so that all the exigencies of the industry and all practicable methods of promoting the economical production and use of oil may be carefully considered.

I suggest that if the Board of Directors of the Institute approves this course, representatives of the Institute should be designated who will be able to furnish the necessary assistance and who will be available for such consultations as may be needed from time to time.

With high regards, I am,

Very sincerely yours,
(Signed) CHARLES E. HUGHES.

Discussion by Directors

In informal discussion several directors stated the desirability of the further handling of the subject of conservation and the continuance of cooperation with the Federal Oil Conservation Board, through a qualified institute representative on behalf of the Committee of Eleven which has been entirely handling the matter. This would apply not only to attendance before the board meetings in Washington but to representing the institute and the industry in regard to any legislation growing out of the board's consideration of the subject.

While the formal addresses before the general sessions of the institute did not stress conservation, lobby discussion brought out the point that the industry is alive to the importance of possible developments in Washington during the next few months. Secretary Work, chairman of President Coolidge's oil board, has submitted to other members of the board, comprising Secretary of Commerce Hoover, Secretary of War Davis and Secretary of Navy Wilbur, a complete survey of the oil industry compiled from replies made by the petroleum industry to questionnaires sent out by the board.

At the coming hearings in Washington it is announced that the board will listen to representative oil men who care to appear and present data and oral views relative to the country's petroleum conditions, and a final report will subsequently be made to the President and

(Continued on Page 134)

Committee of Eleven Is Approved

President Pew Champions Its Conclusions and Paul Shoup Talks of Practical Conservation. Mark L. Requa Pays Tribute to the Late A. C. Bedford

By L. M. Fanning

LOS ANGELES, Calif., Jan. 20.—Before the opening session of the Sixth Annual meeting of the American Petroleum Institute at the Biltmore Hotel on Tuesday, marked by the largest attendance in the history of the Institute, J. Edgar Pew, president, in a review of the activities of the organization said regarding the Committee of Eleven on conservation:

"The committee's work with President Coolidge's oil conservation board has been pleasant and harmonious and I am confident this honorable board has no other purpose than to gather the facts about the oil industry, and, with these before it will make a report consistent with these facts. Such a report will be welcomed by the entire industry."

The address of welcome was made by Thomas A. O'Donnell, of Los Angeles, first, and for five years, president of the Institute. Paul Shoup, president of Pacific Oil Co., also spoke at the opening session. A memorial service held on Tuesday evening for the late A. C. Bedford, chairman of the board of the Standard Oil Co. of New Jersey, was impressive in attendance and in the tributes rendered to the man who was chairman of the Petroleum War Service Committee during the war and who conceived and was responsible for the organization of the Institute. M. L. Requa, of San Francisco, general director of the oil division of the fuel administration during the war who as representing the Government during that period was in close contact with Mr. Bedford, delivered the address at the memorial service.

Both Mr. Pew and Mr. O'Donnell in their addresses spoke of Mr. Bedford's great service to the industry and of his qualities for leadership. Mr. Pew said: "Mr. Bedford was not only the father of the Institute. He was the outstanding representative of the oil industry in this country. Those who knew him personally know of his splendid christian character, his great ability and his capacity for leadership."

Regarding the Committee of Eleven, Mr. Pew related the circumstances that led to its appointment and work up to the point of issuing the report on American petroleum supply and demand and then said: "I had the responsibility of appointing the nine members of this committee, and I am of the opinion that no committee has ever served this or any organization more faithfully. They were selected wholly with reference to their qualifications for the service required. These, together with the large number of subcommitteemen, worked for months, and traveled extensively. Vast amounts of data and confidential information were freely asked for and freely given. Experts outside the industry were called upon and their service used. All of this was practically without cost or expense to the Institute.

"The Institute is deeply indebted to all of these gentlemen for their splendid service, and to the companies which gave their services, and to all of those companies from which much valuable data were obtained and which was, in many cases, confidential to their own organizations.

"The report of the Committee of Eleven does not attempt to give the amount of oil that will be produced in this country from any undiscovered fields. All such attempts in the past have been futile, and necessarily so, because of the very nature of the oil industry. Oil cannot be known to exist in any place before it is actually discovered by the drill, and these discoveries are regulated by the law of supply and demand, as is much of the production from the known oil in sands already discovered.

"Deeper drilling, more intensive drilling in territories where the sands are irregular, and better recovery of oil by other than the usual production methods, as well as the testing of the vast unexplored areas where oil may exist and where the sand conditions are known to exist, are all operations which can only take place when a price condition for oil products is had that will justify such expenditures. It is the way oil has always been produced, and the way we will continue to supply the needed oil for the future.

Safe Background

"Other substitutes, such as shale oil, distillates from coal, and other uses of coal, the development of the production

(Continued on Page 134)

UNIVERSAL OIL PRODUCTS COMPANY ADDS $250,000 TO RESEARCH FUND

LOS ANGELES, Calif., Jan. 20.—The Universal Oil Products Co. has added its pledge of $250,000 to the Rockefeller Research Fund. The subscription was announced today and was acted upon favorably by the board of the American Petroleum Institute. As in the case of the Rockefeller gift which inaugurated the fund, the amount pledged is to be available over a period of five years at the rate of $50,000 annually. In a letter to the officers and directors of the American Petroleum Institute, H. J. Halle, president of the Universal Oil Products Co., said:

"For the purpose of furthering and enlarging the plans and work to be done in scientific research in petroleum, initiated by the fund of $250,000 recently pledged to the Institute by John D. Rockefeller, as defined by him in his recent letter to you, we are pleased to hereby add our subscription and pledge for a like amount, namely $250,000, to be available over a like period of five years, beginning with 1926, at the rate of $50,000 per year, as may be required and called for.

"We have had plans in preparation for the establishment of scholarships in universities and colleges in the United States and foreign countries, for the study and development of the pure science of this important subject. We now feel that concentration of this work under one directing body and for the free use of the industry, is likely to advance more quickly and more efficiently accomplish the desired results.

"Without imposing any restrictions or conditions, other than that the fund shall be used by the American Petroleum Institute, for scientific purposes, as herein specified, we now gladly subscribe the amount herein named, with the express hope that the plan shall be world-wide in scope and its purpose primarily, if not wholly, the search for and development, in a broad sense, of scientific truth underlying and relating to the subject of petroleum, and all for the knowledge, benefit and free use of all people interested."

The Universal Oil Products Co., of Chicago, was organized 12 years ago by a small group, of which J. Ogden Armour was a leading spirit. The company is a technical and scientific organization, with extensive research laboratories in Chicago, and is exclusively engaged in technical and scientific activities connected with the petroleum industry. Its work is the development of processes for the petroleum refining industry, and especially for the increased production of gasoline from crude oil by cracking.

Natural Gasoline Contracts in 1926

Manufacturers Reject the Old Tank Wagon Basis. Buyers Object to Open Market Agreement. Some Based on U. S. Motor

By C. O. Willson

Manufacturers and buyers of natural gasolines in the Mid-Continent area find themselves in much the same position as refiners and their customers in regard to contracts for the coming year. Conditions have been such during the past year in regard to contract and open market prices that the buyers and sellers are having difficulty in arriving at some basis for long time agreements covering their needs in 1926.

A brief resume of developments in 1925 will aid in explaining the present situation. As every tank car buyer knows, prices on all grades of natural gasoline have been relatively high in comparison with refinery gasolines over the greater part of the past 12 months. The trade in previous years had been accustomed to expect that prices on the best grades of natural gasoline would be about the same or lower than the 58-60 U. S. Motor, the principal domestic grade of the refineries. For instance, in 1924, based on the low weekly quotations of The Oil and Gas Journal, the average price for the year was 8.66 cents, while the U. S. Motor average was 9.78 cents. In 1923 the average Grade A price was 9.13 cents and the U. S. Motor average weekly price was 8.96 cents. This relative situation in regard to the prices of the two products had existed so long that it was considered the normal condition and was often used in making long time contracts.

The past year brought a change in this situation. Manufacturers were able to maintain a more stable open market than in previous years, prices holding up remarkably well, especially during the summer and fall months, when refinery gasolines experienced their accustomed slump. The net result of this situation is reflected in the data which show that the average low price on Grade A in Oklahoma for 1925 was 11.96 cents as against 10.55 for 58-60 U. S. Motor from the same area, a difference of 1.41 cents in favor of natural gasoline.

Contract Prices Low

Another factor in the present situation is the relatively low gasoline tank wagon prices, which have prevailed during the past year and which are also often considered in making natural gasoline contracts. Those who established the tank wagon schedules during the past year saw fit to maintain a much narrower margin between those prices and the tank car prices of the refiner. As a result, manufacturers of natural gasoline which had contracts based on tank wagon prices received less in relation to the spot market than they did with similar agreements in 1924 and 1923.

The following table shows the relative situation for the three years:

Table No. 1

	1925	1924	1923
Chicago tank wagon	16.27c	14.68c	17.05c
Newark, N. J., tank wagon	16.89c	17.35c	19.98c
Okla. Grade A natural gasoline	11.96c	8.66c	9.13c
U. S. Motor gasoline	10.55c	9.78c	8.96c
Contract based on Newark, N. J., tank wagon	8.36c	8.73c	10.83c

The prices on Grade A natural gasoline and the U. S. Motor gasoline are based on the low weekly quotations of The Oil and Gas Journal. The tank wagon prices are the daily average, based on schedules established by the Standard Oil Co. of Indiana in the case of Chicago and Standard Oil Co. of New Jersey in the case of Newark, N. J. The contract on the Newark, N. J., tank wagon is based on 80 per cent of the average daily tank wagon price at that point minus the freight rate from Oklahoma, which at the present time is 5.15 cents per gallon.

Subtracting from the Chicago tank wagon, the Oklahoma tank car prices and the spread for the three years is as follows: 1925, 4.31 cents; 1924, 6.02 cents, and 1923, 7.92 cents. The same procedure for the New Jersey tank wagon shows a spread of 4.93 cents in 1925, 8.69 cents in 1924 and 10.85 cents in 1923.

These yearly comparisons clearly show the relatively small spread between the open market tank prices of the natural gasoline manufacturer and the tank wagon schedules in the consuming areas during the past year. Due to this fact, as shown in the above table, the contract price on Grade A natural gasoline, when based on the Newark, N. J., tank wagon, was lower in 1925 than in 1924, although the open market quotations for the two years bore the relationship of 11.96 to 8.66 cents with the higher price in 1925.

This situation for 1925 is shown more in detail and by months in Table 2. In this table the average weekly price on Grade A in Oklahoma and North Texas is given by months and for the year and also the price received by natural gasoline manufacturers in those areas on a representative contract. The fifth and sixth conlumns of the table show the advantage of the open market quotations over the contract prices. Finally, for the purposes of comparison, the prices in Ok'ahoma on 58-60 U. S. Motor gasoline are given.

The contract used in Table 2 is similar to that which has been in effect for a number of years between a large Standard buyer and several Mid-Continent natural gasoline manufacturers. This buyer has in the past made contracts over the year based on the Newark, N. J., tank wagon schedule. In this contract the seller receives a certain specified per cent of the tank wagon minus the cost of transportation from his plant to Bayonne, N. J., the point of destination.

Up to the past year these contracts have usually been satisfactory to the sellers for the reason that, considered over the period of the year, they have netted the manufacturer about as much or more than he would have received had he sold the gasoline on the open market from week to week. This is shown in Table 1, where the contract price for Grade A was 8.73 cents in 1924 or slightly more than the 8.66 average price for the same year. For the year 1923 the prices were 10.83 and 9.13 in favor of the contract.

Table No. 2

Table showing relationship for 1925 between spot prices for Grade A natural gasoline in Oklahoma (Group 3) and North Texas and contracts based on tank wagon schedules and U. S. Motor gasoline. All spot prices based on low weekly quotations of The Oil and Gas Journal. All prices in cents per barrel.

	Av. Weekly Spot Price Grade A		*Av. Weekly Con. Price Grade A		Inc. of Spot Price Over Contract		58-60 U.S. Mtr. Gaso.
	Okla. (Gp. 3)	Br'ck'nridge, Texas	Okla. (Gp. 3)	Br'ck'nridge, Texas	Okla. (Gp. 3)	Br'ck'nridge, Texas	(Ok.G.3)
January	9.19	9.06	6.46	6.89	2.73	2.17	8.47
February	12.06	12.0	9.65	10.08	2.41	1.92	12.31
March	10.65	10.4	9.71	10.14	.94	.26	11.0
April	9.5	9.5	8.61	9.04	.89	.46	10.06
May	12.	12.0	9.09	9.52	2.91	2.48	11.25
June	15.25	15.3	10.05	10.48	5.2	4.82	12.9
July	14.44	14.37	10.05	10.48	3.39	3.89	12.5
August	12.6	12.75	8.71	9.14	3.89	3.61	10.56
September	12.55	12.5	7.61	8.04	4.94	4.46	9.1
October	13.12	13.12	6.85	7.28	6.27	5.84	8.75
November	11.44	11.5	6.85	7.28	4.59	4.22	9.62
December	10.95	11.0	6.85	7.28	4.10	3.72	9.87
Average	11.98	11.96	8.36	8.79	3.62	3.17	10.55

*Contract based on Newark, N. J., tank wagon schedule. The price is 80 per cent of the tank wagon price minus the freight rate from point of shipment. In the case of Oklahoma the freight rate is 5.15 cents per gallon and from Breckenridge, Tex., 4.72 cents.

Lower In 1925

But this favorable situation from the standpoint of the manufacturer did not apply in 1925 under the contract, as shown in Table 2. For the entire year in the case of the Oklahoma manufacturer the contract price was 3.6 cents lower than the average spot market price and 3.21 cents for the operator located in the Breckenridge, Tex., area. The same relative situation obtained in contracts based on tank wagon schedules at other points.

This explains why the manufacturers in most instances are refusing to consider this type of contract for the coming year without a change in contract terms which will give them a greater percentage of the tank wagon price. Some important contracts of this type expire within the next two months and the trade generally is waiting with interest the terms of the new contracts provided the buyer and sellers in this case are able to arrive at some compromise agreement.

Several contracts in effect during the past year were based on the spot market as determined by trade journal quotations. With the past year in mind the manufacturers naturally are generally willing to make new agreements on that basis. Several of these agreements have expired and in most instances the buyers have refused to renew on the same basis.

Buyers' Position

Refiners and other buyers of natural gasoline usually take the position that since 1925 was an exceptional year in regard to natural gasoline prices, it should not be considered in agreements for the coming year. Numerous instances can be cited where refiners who bought on the spot market basis in 1925 are now refusing to renew their agreements and are changing their plant operations so that they will require less, if any, natural gasoline for blending purposes during the coming year.

These refiners say they can not profitably pay more for natural gasoline than they secure for the finished product after they have blended it with their refinery gasoline. They cite instances where they paid 3½ cents more for natural gasoline at the manufacturers' plant than the prevailing quotation on U. S. Motor gasoline. To this difference must be added the transportation charge to the refinery, the unloading charge and evaporation losses, all generally totaling from 1 to 2 cents a gallon. One refiner faced with this condition estimated that he lost 5 cents a gallon on all the natural gasoline he blended with his refinery product.

The answer of the natural gasoline

(Continued on Page 136)

SALE OF ETHYL GASOLINE MAY BE RESUMED IN NEAR FUTURE

WASHINGTON, D. C., Jan. 19.—Ethyl gasoline will in the near future again be placed on the market for general consumption by domestic consumers of motor fuel.

It is believed that this development will result from the report of the committee appointed by the Surgeon General of the United States Public Health Service made known today. The committee which has been conducting an investigation for several months covering the alleged hazards to health accompanying the use of tetraethyl gasoline reported that there are at the present time no adequate grounds for prohibiting the sale of the ethyl gasoline of the composition specified as a motor fuel. The committee also suggests that its use and distribution be controlled by proper regulations.

Surgeon General Cumming said that these regulations would be drawn up immediately in conference with health officers and manufacturers. When the report was made E. W. Webb, president of the Ethyl Gasoline Corp., asked numerous questions to bring out the fact that the committee had no objections to that company resuming the sale of the ethyl gasoline. The committee adopted a resolution favoring a continuation of the investigation of tetraethyl lead poisoning.

Ethyl gasoline, a product developed by the research department of the General Motors Corp., was distributed for about one year by several of the Standard and other large marketing organizations. A small amount of the tetraethyl lead was added to the usual domestic grades of gasoline. The product had anti-detonating characteristics and it secured a wide distribution in some sections.

The gasoline was attacked as dangerous to health shortly after distribution started. Deaths occurred from lead poisoning in the plant of the Standard Oil Co. of New Jersey at Bayway, N. J., where the tetraethyl lead solution was prepared. So far as known no sickness was reported by the distributors and actual consumers of the gasoline. Due to the opposition which developed the sale of the gasoline was stopped by the mutual consent of the distributors and manufacturers in April of last year. Since that time the committee appointed by the Surgeon General has been conducting an investigation. The statement today is the first report of the committee.

Plans of Companies

LOS ANGELES, Calif., Jan. 20.—Directors of the Standard Oil Co. of New Jersey attending the annual meeting of the American Petroleum Institute expressed their satisfaction over the action of the Surgeon General announced in Washington permitting resumption of the sale of ethyl gasoline by the Ethyl Gasoline Corp., owned jointly by the New Jersey company and the General Motors Corp.

The Ethyl Gasoline Corp. voluntarily discontinued the sale last May prior to hearings and investigations by Surgeon General Cumming relative to the possible hazards of manufacture and distribution. Ethyl gasoline is the trade name of gasoline containing a small amount of tetraethyl lead. It was originally the discovery of Thomas Midgley, Jr., of the General Motors Corp., as a result of several years effort to find an anti-knock fuel which would increase the efficiency of automobile motors. Marketing of the new fuel had been under way only a short time when the deaths of four men employed in the plant making the tetraethyl

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Crude Oil—Supply, Demand, Stock

Production and Consumption Curves Approaching Each Other While the Surplus Line Is Flattening Out. Outlook Improving

By Charles E. Bowles

In the last three years the outstanding fact of the crude oil situation is that the total supply and the total demand are slowly approaching each other.

It is true that stocks are far larger than they were then—something like 134,000,000 bbls. larger — but the vital fact is that the wide gap between supply and demand in 1923 has narrowed down until it has almost disappeared in 1925.

In 1923 we increased our total stocks of crude oil approximately 86,000,000 bbls. from 288,703,000 bbls. to 374,671,000 bbls. In 1924 we increased crude stocks 28,084,000 bbls.—or from 374,671,000 to 402,755,000—and in the first 11 months of 1925 crude stocks were increased only 20,167,000 bbls.

In 21 months (January, 1923, to September, 1924, inclusive) our crude stocks were increased 124,000,000 bbls. Then in the last three months of 1924 we drew on crude stocks for a total of about 10,000,000 bbls.

In 9 of the first 11 months of 1925 we added 22,000,000 bbls. to our crude stocks — and in August and again in October we drew on stocks for a total of 2,000,000 bbls.

Obviously the crude oil situation is rapidly working around into the best position it has been in since the peak of Mexican importations several years ago and our own flood of 1923.

Rapidly Bettering

This rapidly bettering situation is clearly shown in the accompanying graphs and the crude oil balance sheets for the last three years. In the assembling of statistics today California refinery fuel oil is included with heavy crude oil and thereby becomes a part of the total crude oil statistics for the entire United States. In all other areas of the United States refinery fuel oil is included with other refined products and thereby becomes a part of the total refined products statistics for the entire United States.

In order, therefore, to have the "crude oil" statistics for 1923 and 1924 comparable with 1925 the figures for 1923 and 1924 have been reassembled on the same basis as the figures for 1925, except that certain final figures for December 31, 1924, are not yet available. When available, it is probable that they will make slight changes in the "stock" and "demand" items for December, 1925—and there may be some minor stock changes when these final figures become available. Their net result, however, will be slight—and will have a negligible effect on the basic trend as shown in the graph.

In studying the line in the upper graph it should be kept clearly in mind that it shows domestic crude oil in storage, foreign crude oil in storage and California fuel oil in storage in California. The line is "all crude" except for California fuel oil in California—and this is included with all other stored crude every month from the beginning of 1923. This item has varied from 7,801,000 bbls. on January 1, 1923, to 15,738,000 bbls. January 1, 1924, and about 20,000,000 bbls. in April, 1925, when it "disappeared from the picture."

Swing to Heavy Crude

The slow swing of the pendulum from light crude to heavy crude is clearly shown by comparing Tables 1, 2 and 3. The production of light crude in 1925 will be about the same as in 1924—approximately 550,000,000 bbls. This is about 50,000,000 bbls. a year less than we produced in 1923.

On the other hand, the production of heavy crude has increased from 134,000,000 bbls. in 1923 to 170,000,000 bbls. in 1924—and to about 215,000,000 in 1925. Heavy oil production increased about 36,000,000 bbls. in 1924—and about 45,000,000 bbls. in 1925.

In the item of imports from Mexico—they dropped from 79,000,000 bbls. in 1923 to 74,000,000 bbls. in 1924—and to less than 56,000,000 bbls. in 1925. Obviously the once-feared "Mexican problem" is rapidly passing.

In the matter of runs to stills of domestic crude oil—there was an increase in 1924 of about 60,000,000 bbls.—and in 1925 of about 100,000,000 bbls. Of foreign crude oil we have run about the same amount for the last three years, approximately 45,000,000 bbls. a year, with less run in 1925 than in either 1924 or 1923.

Exports ran at about 17,000,000 bbls. a year in 1923 and 1924 with a decrease of about 4,000,000 bbls. in 1925.

"Used Otherwise"

The item about which fewer definite figures are available—and less complete figures are available—and about which the industry in general probably knows least, is the item "used otherwise," in the accompanying tables. In striking a balance of total crude stocks it is obvious that "demand" is the difference between "current supply" and the change in total stocks. Of the items which go to make up current demand we know definitely the amounts, each month, of crude run to stills and of crude exported. This, however, does not account for all of the crude oil that is used up each month. In a rather indefinite way we refer to oil burned on leases, transportation losses, bunker oil (much of which, by the way, is "refinery" fuel oil), crude oil used in manufacturing, etc.—but up to the present time no definite and complete accounting; that is, generally available to the industry, has been made of the diversified uses of crude, as crude—and which are herein grouped under the general heading "used otherwise."

Probably no other single thing has caused the petroleum industry more genuine concern than the item of storage—for it is the real barometer of the relation between supply and demand.

The upper of the two accompanying graphs tells the cumulative effect of the relation between supply and demand, while the lower graph shows the month-to-month relation.

Hope For Fine Year

And, disregarding the upper graph, the hope for a fine year in 1926 lies in the closeness with which the supply and demand lines traveled in 1925.

They were relatively wide apart in 1923—approached each other in 1924—and traveled almost together in 1925.

With production dropping—with import dropping—with no new fields of large promise definitely in sight—with the proportion of light oil slowly decreasing, and of heavy oil increasing—with an increase in 1925 of 100,000,000 bbls. in domestic oil run to stills—and, finally, with the approximate amount of motor fuel for 1926 measurably known—with all these highly favorable factors definitely known the crude oil situation "looks good."

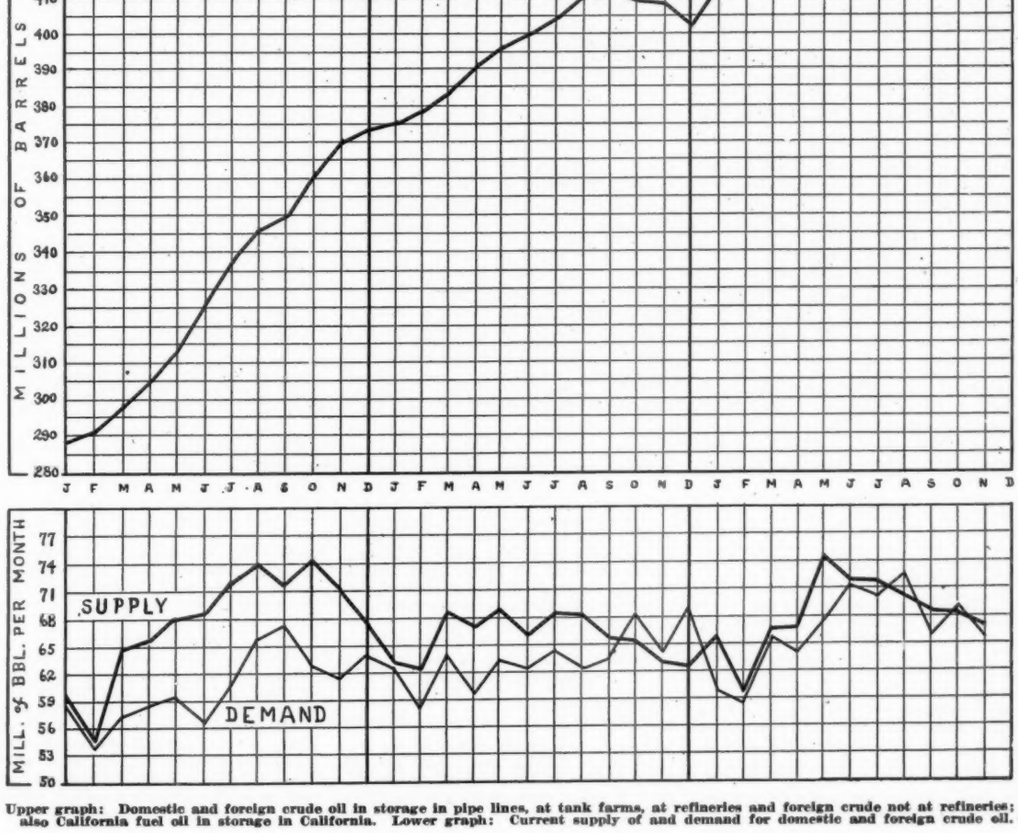
Against this background, however, we have the rather disturbing fact of what is generally referred to as heavy crude oil stocks and of heavy stocks of motor fuel and of fuel oil—relatively, all other refined products stocks are negligible.

And, however promising the general situation may be at the beginning of the year, there is always the possibility of uncovering a Powell or a Los Angeles Basin type field.

Stock Line Flattening

The graph shows clearly that the stock line has been "flattening out"—and as crude stocks are standing today at something like 400,000,000 bbls.—a new field, or a group of new fields, that in 1926 would produce 40,000,000 bbls. of flush oil would produce only about 5 per cent of our requirements in 1926. We "used up" 728,000,000 bbls. of crude in 1923—763,000,000 bbls. in 1924—and about 800,000,000 bbls. in 1925 (based on the first 11 months). We will need, conservatively 850,000,000 bbls. of crude oil in 1926.

(Continued on Page 136)



Upper graph: Domestic and foreign crude oil in storage in pipe lines, at tank farms, at refineries and foreign crude not at refineries; also California fuel oil in storage in California. Lower graph: Current supply of and demand for domestic and foreign crude oil.

Automotive Engineer Discusses Fuel

Tells Motor Industry Oil Industry Is Ahead in Development of Gasoline for Higher Compression Motors

By A. Ludlow Clayden
Member Society of Automotive Engineers

Progress in automobile design has in most respects been truly spectacular, but in some others it has been comparatively slow, and we are now approaching the time when it is reasonable to expect developments of a different sort.

Engine Efficiency

There are three kinds of engine efficiency and with gasoline motors, to call an engine efficient, usually means that it produces a high power for its size or weight. It can be efficient in this respect and yet extremely inefficient as regards gasoline consumption. Another form of efficiency is the mechanical efficiency which means the amount of power wasted by internal friction, but efficiency in the scientific sense means the amount of useful power developed in proportion to the consumption of fuel. On this basis we ought, theoretically, to obtain an efficiency of 30 per cent.

For various theoretical reasons anything much better than this is practically unobtainable, but the efficiency of the average gasoline engine of today is not more than 5 per cent. Putting this a different way, a gallon of gasoline when burned under ideal conditions will produce a definite amount of heat. Heat and mechanical power are interchangeable units. So many units of heat represent so many horsepower. Under ideal conditions we might hope to obtain, in the form of horsepower, about one-third of the potential energy in a gallon of gasoline. In actual practice today we are only getting about one-twentieth. Looked at from this viewpoint it should apparently be easy to double the efficiency of engines because even then they would only be 10 per cent efficient.

Increasing Gasoline Mileage

Now most gasoline engines when set up on a testing stand and operated under the best conditions are much more economical with fuel than they are on the road. This is because under laboratory conditions everything can be kept at the right temperature and because an engine which is working fairly hard is much more efficient than one which is working at part power. In order to get from gasoline the maximum amount of the power available in it, it is necessary to compress the mixture of gasoline and air before igniting, and the greater the amount of compression the more efficiently is the gasoline consumed.

When an engine is running with the accelerator only slightly open there is a practical vacuum in the cylinder at the end of the suction stroke, so that as the piston comes up a large part of its stroke is spent in neutralizing the vacuum, and the actual compression at the moment of ignition may be very low. Engines are built with the highest compression which will enable them to run with wide-open throttle without knocking, and in most engines today the original charge of gasoline and air is compressed to a little less than one-quarter its original volume before the spark passes. With suitable kinds of fuel a higher compression than this is possible. If, for instance, we could compress the charge to one-sixth its original volume without making any other changes, we would get 25 to 30 per cent more miles per gallon of gas.

Gasolines and other motor fuels vary a great deal with respect to the compression that they will stand before the engine begins to knock. Just exactly what causes knocking is still an unsolved scientific mystery; it is a puzzle which remains to be unraveled.

Motor Knocking Causes

We do know quite definitely what constituents of gasoline cause it and what constituents tend to reduce it. For instance, it has long been known that gasoline blended with benzol could be used in high-compression airplane engines. Benzol, although obtained from coal, belongs to the same chemical family as gasoline. In fact, small quantities of benzol are found in some crude oils, but not sufficient to be of noticeable benefit. Gasoline is a mixture of all sorts of substances having in common the one characteristic that they are composed of carbon and hydrogen in different proportions. In benzol there is a lot of carbon and comparatively little hydrogen. In the kinds of gasoline which are worst from the knocking viewpoint there is proportionally much more hydrogen. Between these gasoline and benzol are a whole range of substances with decreasing proportions of hydrogen.

Until recently most gasoline has been obtained by boiling off from the crude oil everything which would turn into vapor below a temperature of about 400 degrees Fahrenheit. The crude oil is heated in a gigantic kettle and the vapors conducted into pipes where they are chilled and condensed back into liquid. After this process the raw gasoline obtained usually has to have some other treatments of a chemical nature in order to make it colorless, and sometimes to free it from unpleasant odors.

Cracked Gasolines

Many crude oils do not contain much of the light material which we know as gasoline, and the sources of supply of crude oils which are rich in gasoline have been shrinking for some time, consequently refiners have been forced to devise methods for making gasoline from heavier oil. This is done in very complicated apparatus by heating the heavy oil to very high temperatures and at the same time subjecting it to very high pressures. This breaks up the heavy petroleums and converts them into lighter ones. Originally this process was very wasteful and the gasoline obtained was not only costly but was in many respects poor in quality, but the oil industry has spent immense sums of money in improving the processes for actually manufacturing or "cracking" gasoline, so that today the process is economical and the quality of the gasoline obtained is excellent.

By a fortunate accident the majority of gasolines which are made by cracking are rich in petroleum compounds of the benzol type. Some of the cracking processes which are most efficient in that they waste the least of the oil fed to them are also most efficient in turning out gasoline of high anti-knock quality; that is to say, gasoline which can be used in quite high compression engines. The motorist, having a car with a high compression engine, if he drove from coast to coast today would find that in some territories his motor showed quite a tendency to knock, while in others there was no such tendency. This is because he would be buying gasoline from all sorts of different sources of supply.

Now it is possible to conceive a condition under which these different kinds of gasoline could be mixed so that the anti-knock quality would be the same everywhere. As the years go on, more and more gasoline will have to be produced by cracking and more and more of the gasoline sold will be a mixture of the two kinds of gas, that is, the natural tendency in development will be toward a greater evenness in this respect.

Engine Improvements Needed

Several spokesmen for the automobile industry have given much publicity to statements that they could and would increase the miles per gallon of their cars as soon as suitable fuel was everywhere obtainable. Today, on the average throughout the country, the fuel sold is suitable for engines of higher compression than the majority possess. If it be assumed that the automobile engineer's ideal is to make engines in which the charge is compressed to one-sixth its original volume instead of a little less than one-quarter, which is the present average, it would not, from many points of view, be desirable to make so large a change at one jump, but it would be possible right now to manufacture cars with slightly increased compression, which would give an increase of, say, 10 per cent. in miles per gallon.

Such cars would find suitable fuel

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AUTOMOTIVE EXPERTS DISCUSS MOTOR FUELS

The annual automobile shows are now under way in all parts of the United States.

Although new models with their usual changes in body design, extra equipment and similar improvements are receiving consideration, the main topic of discussion is the trend toward high compression motors and the demand for a motor fuel which will give satisfactory service with these new departures in engine design. This important trend in the automobile industry is reflected in the trade publications and newspaper publicity incident to the display of the numerous models at the shows.

Several articles appearing in recent issues of The Oil and Gas Journal have explained the importance of the demand for a new type motor from the standpoint of the oil industry. On this page are extracts of discussions appearing in the New York Times concerned with its application in the manufacture of automobiles.

TENDENCY IS TOWARDS HIGHER COMPRESSION

By Alexander Johnston

In the field of engineering development there seems to be a tendency toward slightly higher compression ratios. At the present time about the highest compression ratio in an American car is 5 to 1. If the engineers could raise this to 6 to 1 or better still to 7 to 1 they could give us a degree of economy and a quality of performance that we do not approximate now. But the engineers cannot raise their compression ratios on the present grade of fuel. By the use of doped fuels it would be possible to use a compression ratio of 7 to 1, with all its attendant benefits. It is doubtful if this condition ever can be reached unless the motoring public generally demands it.

CAN DOUBLE ENGINE EFFICIENCY BY INCREASING COMPRESSION

By D. H. Killeffer
Secretary New York Section American Chemical Society

The immediate future of motor fuel in America is entirely bound up with the question of high compression motors and suitable fuels for them. Substitutes for gasoline fade into comparative insignificance beside this development and the prospect of an almost immediate halving of our gasoline requirements. The fact that some of the gasoline substitutes already offered possess any rock properties, inherent in themselves, may lead to their earlier use than otherwise.

There can be no question that the next few years will see all automobile engines of the high compression type and so it is useless to consider fuels which will not fit them. Indeed, the whole question of fuel and motor design must be worked out soon and every possible economy effected. Present-day automobiles are barely 5 per cent efficient from a fuel standpoint; that is, the work accomplished by the machine is only one-twentieth of that which can be theoretically gotten from the same fuel. With even so low an efficiency, the cost of operation of most of our present automobiles is less than 2 cents a mile for fuel and some of them even approach a cent a mile.

Fifty Miles to Gallon

Here is an opportunity of which advantage must be taken. Let us consider the fuel cost of a recent model widely advertised as showing an average of 25 miles to the gallon of gasoline. At 25 cents a gallon that would make the fuel cost of that car 1 cent a mile. To keep within 1 cent a mile for fuel, a car of double that efficiency could afford to pay as much as 50 cents a gallon for its fuel and its owner would have no criticism at the price so long as he managed to travel his full 50 miles on that gallon. This sounds rather like a fairy story—50 miles to the gallon—but we are assured that it is already within sight and almost within reach.

On the point of officiency we have a vivid picture of the ideal automobile by C. F. Kettering of the General Motors Research Corp. He states that it is easily possible to bring about an immediate doubling of the efficiency of automobile engines without seriously altering them as soon as a satisfactory fuel can be distributed widely that will permit an increase in engine compression. He further calls attention to the fact that even the 10 per cent efficiency that this means would still allow 90 per cent of the fuel to be wasted, and then points out the changes in design of the car which would be necessary to reduce this loss materially.

Pictures Ideal Car

The small, light, short, narrow streamline car, which he pictures as approaching the ideal, with a small, high compression engine, a complicated carburetor, a strange and wondrously made transmission, a complex ignition system, no windshield, mudguards or top, and which would be unable to run in high gear except on a perfect level, would be utterly

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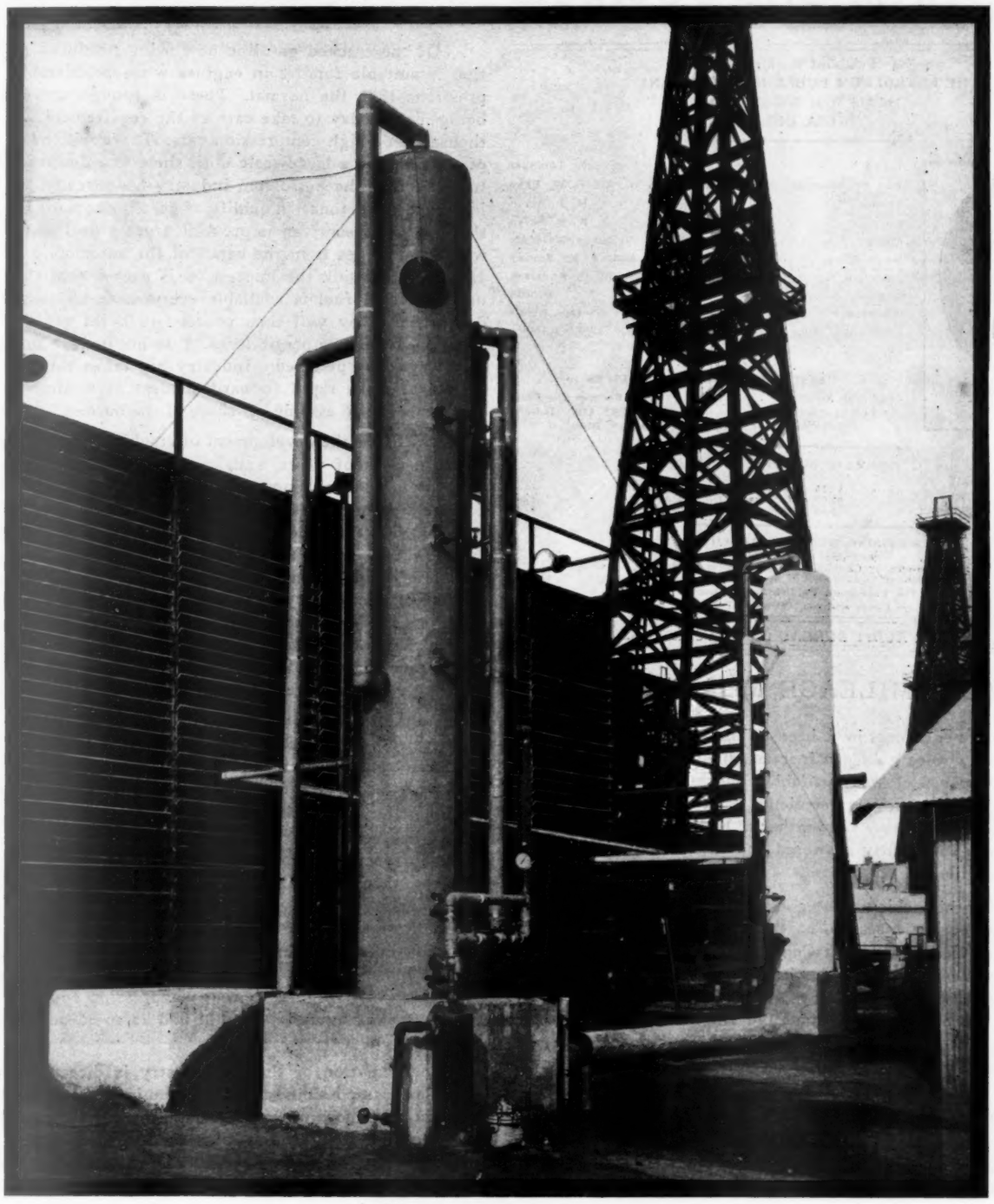
ANOTHER BIG ADVANCE IN ABSORPTION PLANT EFFICIENCY



Pacific National Gasoline Co., Los Angeles

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I. B. P.	82° F
End Point	375
Recovery	92.5
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Plant efficiency 30 lbs. pressure.

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Loss of absorption medium 2% of gasoline production, including all leaks and losses.

Dry gas test .11 with 30 lbs. test.

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TOM McGUIRE
First Nat'l Bank Bldg.,
Denver, Colo.

NEWTON PROCESS MANUFACTURING CO., Fullerton, Calif.

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MORE MILEAGE, MORE CARS

Automotive engineers have been talking for two years or more about how they were going to increase the mileage per gallon as soon as a proper fuel was available. They have delivered such addresses at even American Petroleum Institute meetings without anyone in the oil industry talking back. But within the past week they have been sufficiently answered and the oil industry set right before the public.

Credit for this achievement goes to A. Ludlow Clayden, chief engineer, gas engine research, of the Sun Oil Co., for his paper "Oil Industry Ready for High Compression Engines," read at the Los Angeles meeting of the Institute, and for his article in the Automobile Show section of the New York Times, written as a member of the Society of Automotive Engineers, both of which are published in this issue of The Oil and Gas Journal and completely dispose of the theory that more mileage is waiting on improved gasoline.

While the automotive industry was talking of what it could do if it had an anti-knock fuel the oil industry was developing one and what was more remarkable, as the series of articles in The Oil and Gas Journal showing the superiority of cracked gasoline showed, developing it from crude or fractions thereof that had little or no value for gasoline purposes.

Cracking has not only increased the yield of gasoline but is getting it from heavier crude and at the same time producing a motor fuel that actually is more suitable for the higher compression engines that were to give us so much more mileage.

"Today on the average throughout the country," Mr. Clayden says, "the fuel sold is suitable for engines of higher compression than the majority possess. The oil industry has gone a long way toward providing suitable fuel and it is now up to the automobile industry to give serious thought to supplying the suitable engine."

"For a good many years past," he adds, "the automobile industry has been telling of the wonders it could perform if only the oil industry would provide it with a different sort of fuel but through all this period practically nothing has been done to engines to improve their efficiency as power producers although there are a number of things which are well known and which could have been done."

"Of the cracked gasoline now being produced a large proportion is suitable for use in engines with considerably higher compressions than the normal. There is enough anti-knock gasoline being made today to take care of the requirements of hundreds of thousands of high compression cars. There will never be a supply of anything on a large scale until there is a demand. The position today is that the petroleum industry has already, on the average, improved the detonation quality of gasoline considerably and within the next five years can improve it a great deal more. Whether it will do so or not is in the hands of the automobile manufacturers. Hearing them talk the impression is gained that they are waiting until an ideal fuel is available everywhere and when this happy day arrives they will then proceed to build engines to take advantage of the new possibilities. I do not believe things ever work that way. The petroleum industry has taken the first step and is all set to make rapid forward strides. It is time that the other partner began to assume his share of the burden."

But just as the development of cracking to its present efficiency was the work of years, and, as Mr. Clayden says, we still know very little about its possibilities, the development of the higher compression engine is not to be an over-night revolution. He suggests rather that there are two methods which the automobile industry may follow: Slight increase in the compression as new models of engines are put on the market, which, he says, ought to be perfectly practical because the average gasoline is suitable, while in a good many parts of the country where the bulk of the gasoline sold is well above the anti-knock quality, throughout California, for instance, it would seem easy to enter the thin edge of the wedge by supplying higher compression cars for such territories.

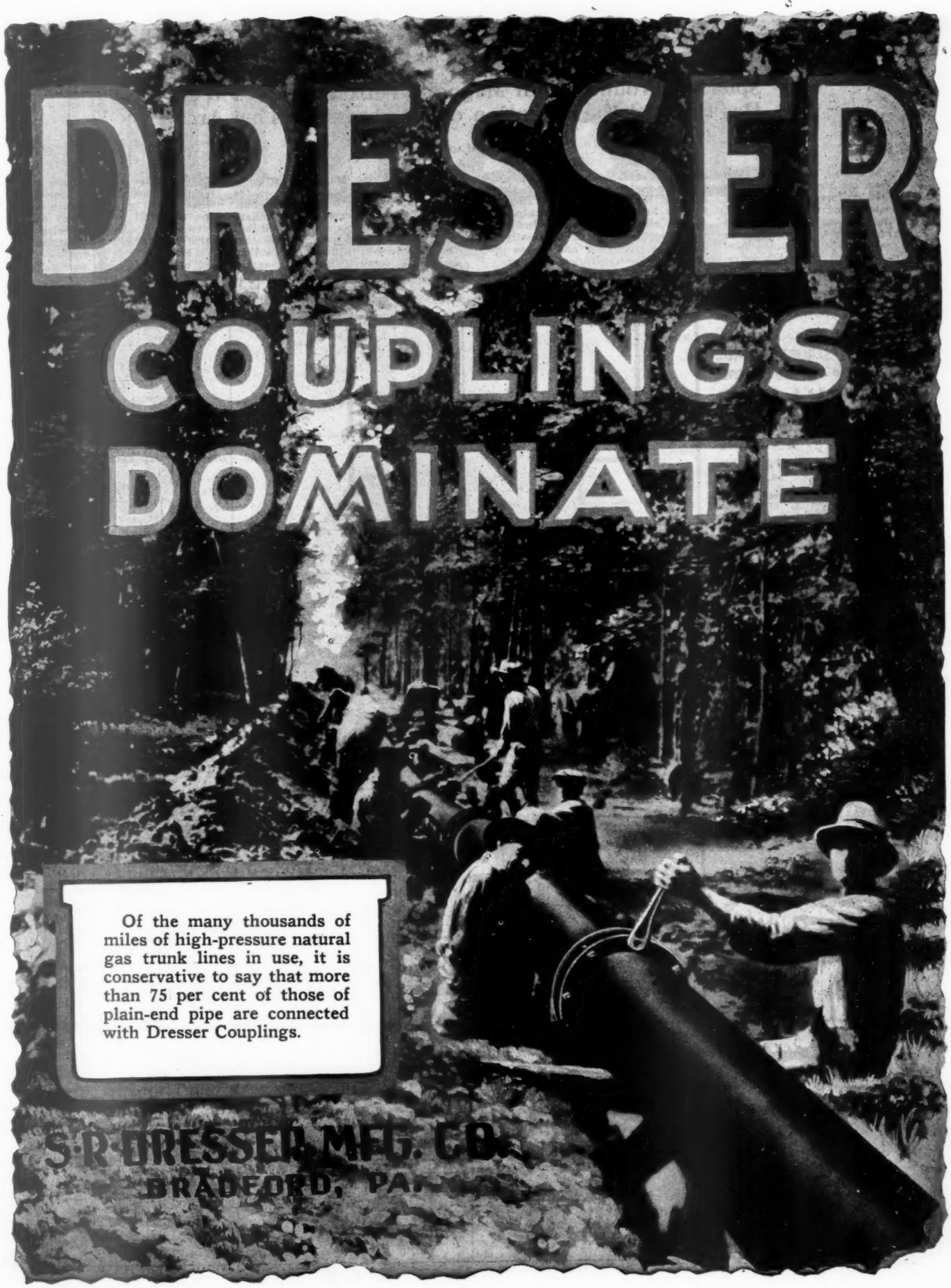
The automobile shows of 1926 have failed to disclose any announcement of such innovations despite repeated rumors of startling disclosures. In view of the wide distribution of cracked gasoline with anti-knock quality, Mr. Clayden's challenge may bring results.

It has been admitted that notwithstanding the improvements of recent years the internal combustion engine is only 5 per cent efficient, that is that it gets only about one-twentieth of the potential energy out of a gallon of gasoline. It has been declared by leading automotive engineers that this can be increased to 10 per cent, even doubling the present mileage. Gasoline and air are now in most engines compressed to a little less than one-quarter of the original volume. If that compression could be increased to one-sixth it is figured we could add 25 to 30 per cent more miles to the gallon.

The attention of the oil industry is directed to this subject because of its possible reaction on the industry. But the superficial thought that more mileage through more efficient motors will reduce demand for gasoline, even though theoretically advanced in the report of the Committee of Eleven on future demand, is not borne out by experience in other commodities.

We may be as far out in supposing a saturation point for gasoline consumption as the prophets have been in estimating the saturation point for automobile consumption. More miles to the gallon is likelier to mean more gallons to the car than the reverse, and also more cars.

This is likely to be true particularly as to trucks and buses for which the item of fuel is relatively much more important than for passenger cars. Any increase in the mileage per gallon for vehicles hauling freight and for motor buses must greatly promote and stimulate the use of these conveyances. At the same time there will be the compensating factor of a better price for gasoline that gives greater mileage. When the automotive industry makes good its promise of more efficient engines, the public getting more miles to the gallon will be able to pay a more equitable price for the gasoline that gives that greater mileage.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Wewoka Pool Deep Sand Possibilities

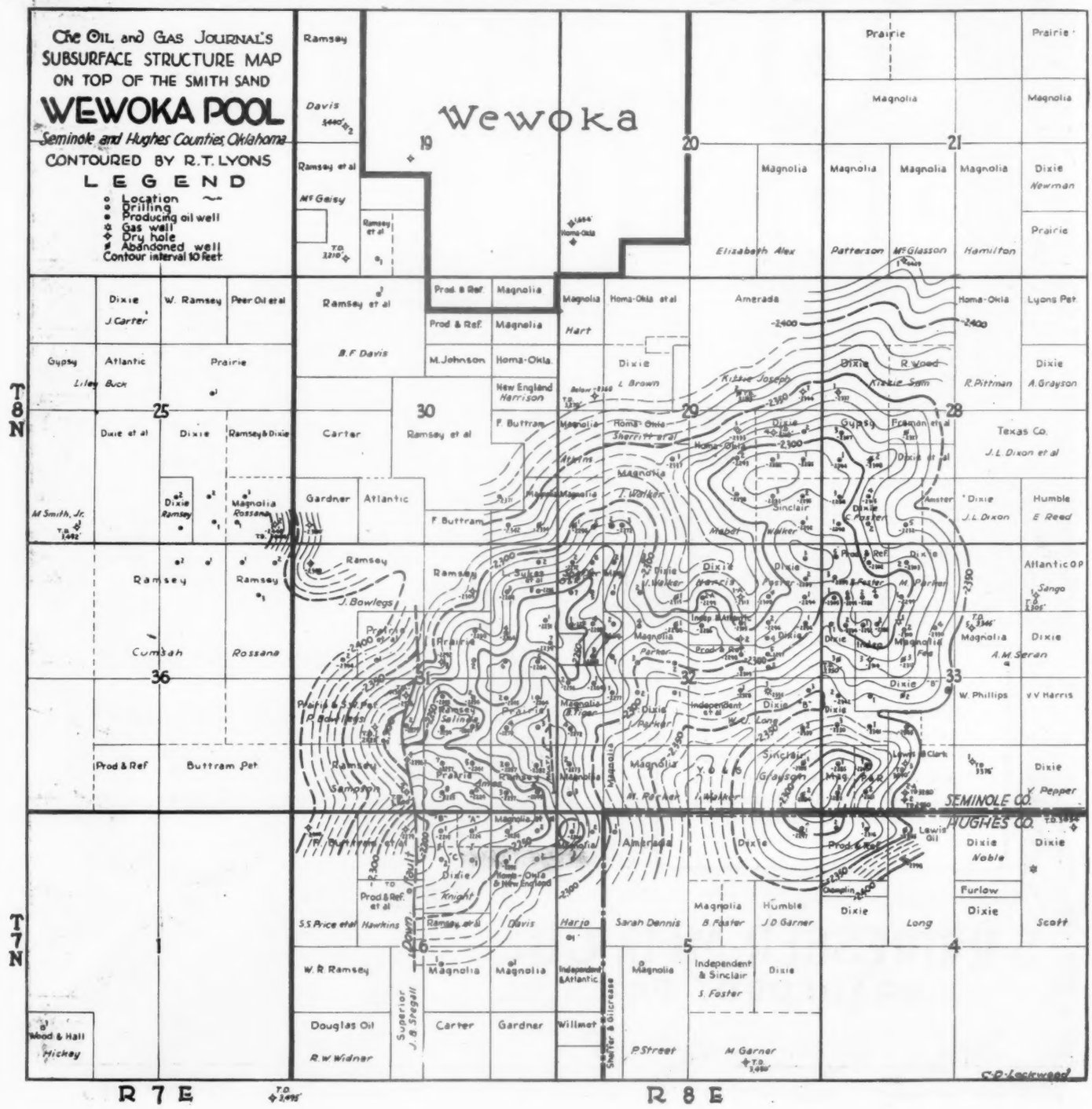
Splendid Production of Magnolia Petroleum Co.'s Well Has Focused the Attention of Operators on That Area

By C. D. Lockwood

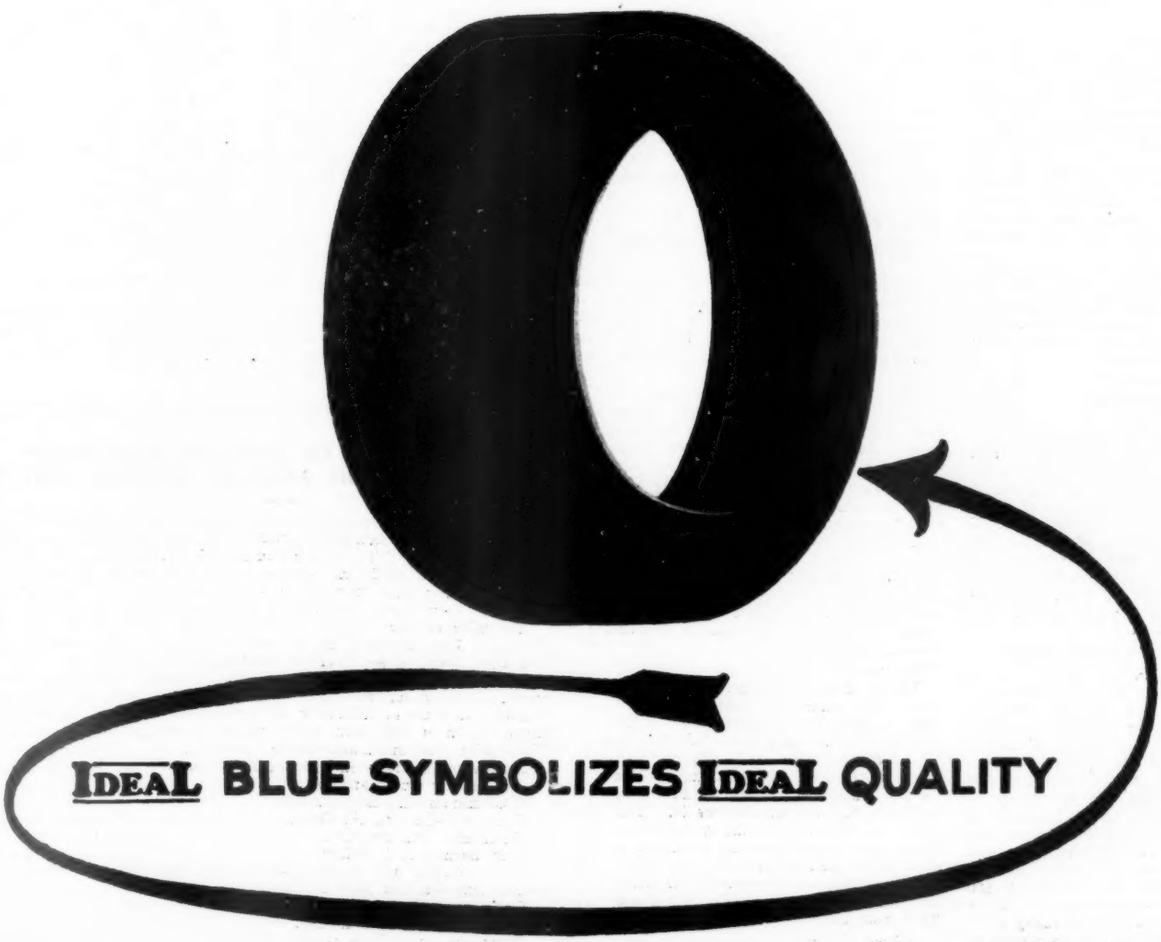
A steady output of more than 4,000 bbls. daily from the Magnolia Petroleum Co.'s deep sand producer in the Wewoka Field of Seminole and Hughes Counties, Oklahoma, varying scarcely 100 bbls. in the month following its discovery, has focused attention of Mid-Continent operators on this old area. In fact, the removal of the Garber menace from the picture has left just two districts with potential possibilities sufficient to cause concern, namely, the South Papoose or Fuhrman Pool in northern Hughes County and the Wewoka deep sand, along the western line of the same county. The former area, while not condemned at the present writing, is apparently not destined to contribute any serious problem to the overproduction situation.

The Wewoka deep sand possibilities are difficult to estimate even with a contour map to show the structure in the upper sands. When the Magnolia Petroleum Co. brought in its No. 1 Harjo in the NW cor. of Section 5-7-8 on December 17, 1925, some observers were inclined to believe that it was a freak well, but its excellent staying powers since that time have tended to dispel this notion. As can be seen on the accompanying structure contour map drawn on the top of the Smith sand, or 3,100-foot horizon, the big well is about 60 feet down the east slope of the main structure. Whether or not the Wilcox structure conforms to the upper structure is a question that will be answered only when a few of the old wells now being deepened reach the same formation from which the Magnolia well is producing. Early last week one of them was within 5 feet of the same stratigraphic level and others were close enough to indicate that a large

(Continued on Page 110)



IDEAL
VALVE CUPS



THE
NATIONAL SUPPLY
COMPANIES

Late News From the Fields

OKLAHOMA

The Braman Townsite Field came back to prominence once more with two completions of good size by the Comar Oil Co. The Comar's No. 6 Bechtel was drilled to the lower Stalnaker sand, and made 3,766 bbls. for the 24 hours ending Wednesday of this week. The total depth of the well is now 2,376 feet and it was drilled deeper from 2,359 feet. The Comar's No. 2 Biddle, NE cor. NW NE SW, Section 5-28-1w, was drilled from 2,359 to 2,368 feet and made 2,756 bbls. the first 24 hours. These two wells have livened the interest in the South Braman Field which has been lagging owing to the decreasing production.

In the Tonkawa deep sand area the Marland Oil Co. and the Mid-Continent Petroleum Corp.'s No. 11 School land, C north half north half NE, Section 33-25-1w, found the Wilcox sand at 4,266-80 feet and is flowing 75 bbls. an hour after a shot of 30 quarts.

In the Papoose Pool, the Carter Oil Co. and Sands Petroleum Co. have a failure in a deep sand which may be the Wilcox. It is SW cor. NW NE, Section 1-9-9, and the sand was found at 3,908-15 feet with a hole full of water.

In the Wewoka deep sand, the well of W. R. Ramsey, a quarter mile to the north of the Magnolia discovery well, looks very discouraging. It is No. 1 Amos, NE cor. SE SE, Section 31-8-8, and it is drilling in lime at 4,183 feet with nothing showing. The deep sand has apparently been missed in this test.

In Seminole County the wildcat well of Bryan Brothers and the Carter Oil Co. swabbed 108 bbls. on Tuesday of this week. This well, SE cor. SE, Section 4-7-6, found a stray sand which is being tested and which has no gas pressure. It is doubtful if this well will produce from this horizon.

In the Osage country, the Sidwell Drilling Co. has a well in No. 2, C NE NE, Section 35-24-8. Sand was at 2,054-55½ feet and the well flowed 150 bbls. daily at the start, and is now making three bbls. an hour.

KANSAS

The wildcat test of Rood and others attracted considerable attention and brought Barber County into the news when it had a show of oil and gas in an unidentified formation found at 3,020 feet. This well, No. 1 Kimburg, NW cor. SE NW, Section 14-30-12w, had what is estimated at 1,000,000 feet of gas and 25 feet of oil standing in the hole. The sand will be tested out slowly after the casing is underreamed.

NORTH CENTRAL TEXAS

FORT WORTH, Tex., Jan. 20.—Reports from Crockett County throw a much more favorable light on the possibilities of an oil pool there, when the Humble Oil & Refining Co.'s No. 3 Powell, a quarter of a mile south of the World discovery well, was reported showing for production. At present it is shut down at 2,783 feet, having gone out of the pay sand at 2,680 feet. At last reports the well was standing within 300 feet of the top in oil, with no water showing. The oil had been rising gradually, as Sunday's reports gave only 1,000 feet of oil in the hole. It is generally believed the well will flow soon.

Earlier in the week reports from this well were distinctly discouraging, as it had passed the level where the pay sand had been expected. Some operators believe that some mistake had been made in computing the elevation or else in estimating the depth on the former reports. The present showing is considered even better than the showing in the discovery well and the Humble is said to be making preparations to drill in No. 2 Powell, now only a small producer, deeper.

There are several new producers in Wilbarger County. Barkley and others' No. 3-B Stephens is showing for 100 bbls. at 2,335 to 2,373 feet; the Humble Oil & Refining Co.'s No. 4-G Waggoner is making 200 bbls. on the pump from the sand at 1,889 to 1,901 feet and the Landreth Production Co.'s No. 10-D Waggoner is making 110 bbls. at 1,870 to 1,880 feet.

Sloan and others' No. 1 Waggoner in Section 32 is estimated good for 100 bbls. at 2,305 to 2,405 feet, while Staley and others' No. 11 Stephens is pumping 140 bbls. at 2,291 to 2,362 feet.

In north Archer County, Hill and others' No. 4 Hutcherson is a new producer. In 18 hours the well swabbed 200 bbls. from sand topped at 1,374 feet and drilled to a total depth of 1,390 feet. The McCarty Oil Co.'s No. 15-B Wilson, also in north Archer, is making 105 bbls. at 872 to 901 feet.

Just north of the town of Olney in northern Young County, The Texas Co.'s No. 4 Boren is also a new producer, reported making about 120 bbls. at 1,070 to 1,083 feet.

CALIFORNIA

LOS ANGELES, Calif., Jan. 20.—At Long Beach, George W. Johnston's well No. 3 blew in as a gasser from 3,500 feet while drilling ahead. It started off at a rate of 20,000,000 feet daily and considerable mud and water.

A man gauging oil at the Standard's El Segundo refinery was killed when a spark due to dropping down of the lid ignited the gases from a tank of distillate. The top was blown 200 feet away and the contents of the tank burned. The gauger was blown 60 feet.

ANOTHER NEW POOL IS OPENED IN GULF COAST

HOUSTON, Tex., Jan. 20.—Gulf Production Co.'s No. 5 Moore at Orchard Dome, in Fort Bend County, is flowing 2,500 bbls. at 3,800 feet. It is a new pool, the fourth in the Gulf Coast in six weeks.

Gulf Co.'s No. 62 Phoenix at Hull is flowing 1,200 bbls. at 2,800 feet. The deep sand well at Spindletop is still holding an average of 5,000 bbls. with ½-inch choker.

At High Island, Galveston County, the Sun Oil Co.'s No. 6 Cade, a worked-over hole, is pumping 30 bbls. No. 8 Cade is washing and No. 7 Lockhart is drilling below 400 feet. The Gulf Production Co.'s No. 3 Smith, another worked-over well, is pumping 10 bbls. No. 2 Smith is fishing and No. 4 Smith is waiting for cement to set. No. 1-B Smith is drilling below 1,175 feet.

Two unusual wildcat tests are drilling in Shelby County in East Texas. Collette & O'Keefe's No. 1, located 3 miles east of Tenaha, is drilling below 4,000 feet and the Crusader Oil Co.'s No. 1, some 20 miles west of Tenaha, is also below 4,000 feet. Roy Anderson has started a test on lands of the Pickering Lumber Co., east of Shelbyville. The Texas Co. drilled 12 wells on this tract about seven years ago and developed a small production in some of the holes. Later the company surrendered the lease. The McCormack Drilling Co. is drilling a test near Joaquin.

Shelby County has always been considered as a prospect and 42 wildcat wells have been drilled in that county during the past 20 years.

In Bastrop County, the Coyle-Colcord Oil Co.'s No. 1 Haywood, 7 miles west of the town of Bastrop, is drilling below 2,500 feet.

George W. Newman and others' No. 1, northwest of Brookshire, Waller County, is drilling around 900 feet.

ALFRED DEACON DIES

CHATHAM, Ont., Jan. 18.—Alfred Deacon, for many years well known in the oil business, died very suddenly at his home in Petrolia, Ont. He came to Petrolia as a young man, 50 years ago, and during nearly all that period was employed on the J. L. Englehart oil properties, now owner by A. Telsey. One son, Thomas, is a driller in Maracaibo, Venezuela.

CONSERVATION BOARD'S HEARINGS SCHEDULED FOR FEBRUARY 10 AND 11

WASHINGTON, D. C., Jan. 16.—Secretary of the Interior Hubert Work, as chairman of the Federal Oil Conservation Board, has designated February 10 and 11 as dates on which public hearings will be held by the board to enable representatives of the oil industry to be present and express their views relative to national petroleum conditions.

Secretary Work said the two days will be devoted to hearing the industry's representatives, and those desiring to submit lengthy arguments, statistical and other data, will be invited to render such extended views in writing within 10 days immediately following the public hearings. After the formal hearings have been completed, an opportunity will be given for limited discussion outside of the arranged program.

It is the desire of the board, the chairman said, to hear from all schools of thought in the industry. It is expected that the following may be present to give their views: Amos L. Beaty, president, The Texas Co.; W. N. Davis, president, Mid-Continent Oil and Gas Association; George S. Davison, president, Gulf Refining Co.; Henry L. Doherty, C. F. Kettering, president, General Motors Research Corp.; K. R. Kingsbury, president Standard Oil Co. of California; J. O. Lewis, consulting petroleum engineer; L. V. Nicholas, president, National Petroleum Marketers Association; Thomas A. O'Donnell, Associated Oil Co.; J. Edgar Pew, president, American Petroleum Institute; Mark L. Requa, John D. Rockefeller, Jr.; W. C. Teagle, president, Standard Oil Co. of New Jersey, and Professor Lester C. Uren, University of California.

Others who may wish to appear at the public hearings are invited to communicate immediately with the chairman, stating the topic it is desired to discuss, in order that the board's program may be formulated with some degree of continuity and the subjects grouped for the guidance of the board and those attending the hearings.

"The board has an open mind," Secretary Work said. "The industry has willingly and fully responded to the Government's request for specific data relating to petroleum conditions. The views expressed are divergent, the statements supplied conflict in some instances, and the conclusions arrived at represent apparently two distinct schools of thought. The board, however, is not inclined at this time to accept any of the expressions as conclusive, but rather is hopeful for further elucidation from those who may be willing to amplify or submit additional basic facts.

"The Government is a large producer of petroleum, the custodian of great tracts of actual and potential oil lands, and the Government wishes to benefit, constructively and lastingly, by the facts to be eventually adduced from the present inquiry. At the same time the industry itself can perform a duty to its own pioneers and those executives who now control enormously valuable oil lands.

"From the governmental inquiry much good may come to the Government and the industry, and when this board has rendered its report, based upon official and unofficial data, it wants to feel that it has performed a service not only for the industry, but to the Nation as well. In the final analysis it is desired that all branches of the industry may feel they have been accorded full and free opportunity to present their 'side of the matter.' The hearings will be held in the office of the secretary of the interior, beginning at 11 a. m. and will be open to the public."

INDEX COMPILED OF ARTICLES PUBLISHED IN THE OIL AND GAS JOURNAL LAST YEAR

An index of the principal articles which appeared in The Oil and Gas Journal during 1925 has been compiled and will be issued as an eight-page supplement to The Oil and Gas Journal of January 28. The compilation was made as an additional service to the thousands of readers of this publication who have expressed a desire from time to time for such an index that they might more readily refer to back files for articles desired.

The wide variety of subjects covered in the issues of The Oil and Gas Journal in 1925 is seen from the number of groups into which the articles have been listed, these covering every phase of the industry both in this country and abroad including producing, refining, marketing, equipment, research, legislation, transportation and other matters in which everyone connected directly or indirectly with the petroleum industry is interested. The headings in the index, under which the articles have been listed by page number and issue, include the following:

Anti-Knock Fuels and Gasoline Substitutes.
Associations and Bureaus.
Cracking and Cracked Gasoline.
Economic, Finance, Accounting, Valuation and Administration.
Equipment and Supplies.
Fire Hazard and Safety.
Foreign—Asia and Oceanic, Canada, Europe, Mexico, South America, Central America and West Indies.
Legislation, Litigation, Regulation and Taxation.
Lubricants and Lubrication.
Maps.
Natural Gasoline, Natural Gas, Helium.
Production and Development U. S.—General, Eastern, Gulf Coast and West Central Texas, Mid-Continent, Pacific Coast, Rocky Mountain.
Production Methods.
Properties, Specifications, Testing.
Refinery Operations, Petroleum Products and Marketing—United States.
Refining and Chemical Methods.
Research and Public Relations.
Reserves and Conservation.
Shale Oil and Coal Carbonization.
Statistics.
Transportation and Storage.
Utilization—Automotive and Aeronautic; Oil Burning.

North Central Texas

By George R. Kelley

Buttram Petroleum Co. wildcat, No. 1 Preston, southern Jack County, may open new shallow sand field. Danciger and others get an extension of Cross Cut Pool in northern Brown County. Magnolia Co. gets sand in deepened well in Moran Field. World Pool test is discouraging.

FORT WORTH, Tex., Jan. 18.—North Texas oil men are showing considerable enthusiasm over the prospect for the opening of a new semi-shallow sand field in the southern part of Jack County, around the No. 1 Preston wildcat of the Buttram Petroleum Co. This well was reported to be showing some oil, but since the first reports were sent out, depth and sand records have been revised and the owners have been swabbing the hole.

According to the latest reports the well is swabbing about 50 bbls. daily, and making an occasional flow from the sand topped at 2,068 feet and drilled to a total depth of 2,075 feet, giving a total of 7 feet of the pay sand. Reports do not indicate any showing of water or anything that might work to the detriment of early completion as a probable commercial producer. The oil is reported to have a specific gravity of 41.1.

The well is about 4 miles west of the old Williams well of the Roxana Petroleum Corp., which was drilled about five years ago and which is a small producer from a sand at around 4,700 feet. There are reports of exorbitant lease prices in the vicinity of the new discovery, but so far these reports have not been definitely confirmed by actual transactions. Among the companies keeping a close watch on the well is the Sinclair Oil & Gas Co., which has a 40-acre lease in close proximity.

Cross Cut Extension

In the extreme northern part of Brown County Danciger and others have apparently brought about an extension to the Cross Cut Pool. Their No. 1 Eddington, about a quarter of a mile southwest of the southern outpost of production in the Cross Cut Field, is showing for a nice producer, though not yet completed. The well is estimated good for 30 bbls. with the drill 3 feet in a sand topped at 1,238 feet. This sand is generally regarded as the original Cross Cut sand, which has accounted for the bulk of the production in Brown County the past year.

Operators in the Moran district of Shackelford County are manifesting more than ordinary interest in the possibility of a deeper producing sand in the Moran area. The Magnolia Petroleum Co. has recently deepened its No. 1 Terry, just west of the town of Moran to a total depth of 2,215 feet, getting 2 feet of sand topped at 2,213 feet. The well is standing several hundred feet of oil in the hole and has been flowing by heads, when agitated. On a 24-hour test the well made 60 bbls. The well was drilled about 13 years ago and has been a rather consistent producer from the sand at 2,150 feet.

World Pool Tests

As work progresses on the Humble Oil & Refining Co.'s No. 3 Powell in the World Pool of Crockett County, the test does not hold as bright promise as had been forecast by some. According to the latest reports the hole is now below the level at which the pay formation should have been expected, comparing the log of the test with the No. 1 Powell, the discovery, drilled by the World Oil Co. and the No. 2 Powell, drilled by the Humble.

No. 3 well is now at a total depth of 2,654 feet and has not had the slightest showing of either oil or gas. The discovery well, which is about a quarter of a mile north of No. 3 Powell, had the sand at 2,641-47 feet. The fact that No. 3 has had no showing whatever has led some to the belief that it may yet encounter the sand at a lower level.

There is a new producer on south Archer County that has not been completed, but is showing for a very good producer, the Trinity Townsite Co.'s No. 2 fee, which is swabbing oil from the sand at 1,404-09 feet. The well is estimated to be making 150 bbls. daily.

The Humble Oil & Refining Co. has three new producers in the Wilbarger County district, two on the Stephens lease in the heart of the old South Vernon Pool, both of which have been deepened to the lime and one in the 1,900-foot sand on the Waggoner ranch. The company's No. 31 Stephens is still making oil at the rate of 220 bbls. daily from the lime at 2,301-2,425 feet and No. 39 Stephens swabbed 110 bbls. in 12 hours from the lime at 2,331-80 feet. The company's No. 4-G Waggoner is flowing at the rate of 250 bbls. daily from the sand at 1,889-1901 feet.

Average Daily Production

Average daily production in this territory for the week shows a decline of 2,855 bbls. Total daily runs are 168,340 bbls., compared with a total daily average the previous week of 171,195 bbls., leaving a loss on the average of 2,855 bbls.

Practically all of the fields with the single exception of Reagan County contributed to the gradual decline in production. Reagan County was held up and even boosted by the completion of the Texon Oil & Land Co.'s No. 34 Group 1 University lands, which had a flush production of 2,420 bbls. This was by far the best completion of the week in the entire territory.

Wilbarger County accounted for a total of 990 bbls. of new production from six new producers, out of nine completions. The best completion in the county was the Humble Oil & Refining Co.'s No. 2-I Waggoner which made 300 bbls. The same company's No. 2-I Waggoner made 225 bbls. and the Landreth Production Co.'s No. 9-D Waggoner is a late completion making 240 bbls. daily.

Week's Completions

The week did not make a very creditable showing in the matter of completions. Compared with the previous week, which was low with a total of 89, the week accounted for actual completion of only 72 wells, 34 of which were producers, 34 failures and 4 gas well's. New production for the week amounted to 5,340 bbls., nearly half of which came from one well, the Texon Oil & Land Co.'s No. 34 Group 1 University in Reagan County, and about four-fifths of which came from the three counties of Reagan, Archer and Wilbarger.

The following table gives the completions by counties:

County—	Comp.	Prod.	Dry	Gas	New Prod.
Wichita	13	8	5	0	205
Wilbarger	9	6	3	0	990
Archer	19	12	7	0	925
Young	8	0	8	0	...
Eastland	4	0	1	3	*...
Brown	4	1	3	0	15
Reagan	1	1	0	0	2,420
Callahan	2	1	1	0	200
Shackelford	4	0	3	1	*...
Mitchell	1	1	0	0	200
Scurry	1	0	1	0	...
Montague	2	2	0	0	190
Clay	1	0	1	0	...
Baylor	1	0	1	0	...
Hutchinson	1	1	0	0	45
Wheeler	1	1	0	0	50
Total	72	34	34	4	5,340
Total last week	89	52	36	1	4,630
Difference	7	18	2	3	710

*Eastland County had three gas wells making a total of 14,500,000 feet of gas and Shackelford County had one making 500,000 feet daily.

PRODUCTION REPORT
Week Ending January 14

Burkburnett

Gulf Production Co.	490
Humble Oil & Refining Co.	345
Magnolia Petroleum Co.	2,630
Panhandle Refining Co.	235
Prairie Oil & Gas Co.	30
Sinclair Oil & Gas Co.	50
Sun Oil Co.	80
The Texas Co.	390
Texhoma Oil & Refining Co.	515
Miscellaneous	7,955
Total	12,720

Electra

Empire Gas & Fuel Co.	915
Gulf Production Co.	955
Humble Oil & Refining Co.	125
Magnolia Petroleum Co.	3,520
Panhandle Refining Co.	45
Prairie Oil & Gas Co.	130
The Texas Co.	3,415
Texhoma Oil & Refining Co.	1,640
Miscellaneous	6,410
Total	17,155

Wilbarger County

Gulf Production Co.	35
Humble Oil & Refining Co.	3,740
Prairie Oil & Gas Co.	45
Miscellaneous	11,305
Total	15,125

Iowa Park

Gulf Production Co.	40
Humble Oil & Refining Co.	240
Magnolia Petroleum Co.	585
Panhandle Refining Co.	35
The Texas Co.	415
Texhoma Oil & Refining Co.	30
Miscellaneous	3,670
Total	5,015

Archer County

Empire Gas & Fuel Co.	935
Gulf Production Co.	2,245
Humble Oil & Refining Co.	430
Magnolia Petroleum Co.	1,785
Panhandle Refining Co.	165
Prairie Oil & Gas Co.	2,630
Sun Oil Co.	350
The Texas Co.	2,555
Texhoma Oil & Refining Co.	2,280
Miscellaneous	19,155
Total	32,530

Stephens County

Empire Gas & Fuel Co.	35
Gulf Production Co.	1,355
Humble Oil & Refining Co.	700
Magnolia Petroleum Co.	405
Mid-Kansas Oil & Gas Co.	1,475
Prairie Oil & Gas Co.	925
Sinclair Oil & Gas Co.	65
Sun Oil Co.	165
The Texas Co.	1,250
Texas Pacific Coal & Oil Co.	1,275
Miscellaneous	6,585
Total	14,235

Ranger

Gulf Production Co.	290
Humble Oil & Refining Co.	35
Magnolia Petroleum Co.	630
Mid-Kansas Oil & Gas Co.	155
Panhandle Refining Co.	145
Prairie Oil & Gas Co.	625
Sinclair Oil & Gas Co.	315
The Texas Co.	130
Texas Pacific Coal & Oil Co.	755
Miscellaneous	2,695
Total	5,775

Moran

Empire Gas & Fuel Co.	30
Humble Oil & Refining Co.	10
Prairie Oil & Gas Co.	10
The Texas Co.	300
Texhoma Oil & Refining Co.	95
Miscellaneous	1,995
Total	2,440

Young County

Gulf Production Co.	195
Humble Oil & Refining Co.	460
Magnolia Petroleum Co.	260
Mid-Kansas Oil & Gas Co.	15
Panhandle Refining Co.	145
Prairie Oil & Gas Co.	10
Sinclair Oil & Gas Co.	370
Sun Oil Co.	60
The Texas Co.	535
Texhoma Oil & Refining Co.	580
Miscellaneous	6,500
Total	9,130

Eastland-Comanche

Empire Gas & Fuel Co.	10
Humble Oil & Refining Co.	150
Magnolia Petroleum Co.	735
Mid-Kansas Oil & Gas Co.	175
Prairie Oil & Gas Co.	110
Sinclair Oil & Gas Co.	20
The Texas Co.	135
Texas Pacific Coal & Oil Co.	95
Miscellaneous	1,505
Total	2,935

Panhandle

Carson County	2,190
Hutchinson County	2,400
Wheeler County	120
Gray	180
Potter	20
Total	4,910

Miscellaneous Pools

Clay	405
Montague	990
Jack	25
Throckmorton	190
Baylor	265
Palo Pinto	460
Brown	2,140
Coleman	235
Callahan	5,345
Mitchell	3,135
Reagan	33,070
Scurry	65
Crockett	45
Total	46,370
Total this week	168,340
Total last week	171,195
Loss	2,855

Wichita County—Completions

Rubsam and others' No. 2 Chilson, dry at 780 feet; Madison Oil & Gas Co.'s No. 13 Burnett, 70 bbls. at 1,515 feet; Magnolia Petroleum Co.'s No. 6-A Honaker, 15 bbls. at 1,946 feet; O'Donohoe and others' No. 2 Pratt, dry at 1,922 feet; Perkins and others' No. 3 Beaver-Electra, 120 bbls. at 1,612 feet; Ryan Petroleum Co.'s No. 49 Nance, 15 bbls. at 487 feet; No. 50 Nance, dry at 505 feet; Shappell Oil Co.'s No. 3-A McCarty, 10 bbls. at 488 feet; No. 4-A McCarty, 15 bbls. at 483 feet; No. 4-A McCarty, dry at 500 feet; No. 6-A McCarty, dry at 744 feet; No. 5-B McCarty, 30 bbls. at 1,205 feet; Texhoma Oil & Refining Co.'s No. 12 Waggoner Brothers, 30 bbls. at 1,785 feet.

Wilbarger County

Herbert Oil Co.'s No. 1 Waggoner, dry at 2,303 feet; Humble Oil & Refining Co.'s No. 22 Castlebury, 45 bbls. at 1,838 feet; No. 1-I Waggoner, 225 bbls. at 1,916 feet; No. 2-I Waggoner, 300 bbls. at 1,886 feet; Kolp and others' No. 11 Waggoner, 5 bbls. at 1,355 feet; Landreth Production Co.'s No. 9-D Waggoner, 240 bbls. at 1,918 feet; No. 1-E Waggoner, dry at 2,689 feet; No. 1-P, dry at 2,152 feet; McCamey and others' No. 24 Stephens, 175 bbls. at 2,080 feet.

Archer County

Atlantic Oil Production Co.'s No. 1 Plowman, dry at 1,450 feet; Burns and others' No. 1 McCrary, 100 bbls. at 1,587 feet; Caldwell and others' No. 3 Hutcherson, dry at 1,430 feet; Humble Oil & Refining Co.'s No. 4 Wilson, 100 bbls. at 902 feet; Kentucky Oil Corp.'s No. 3 Miller, 10 bbls. at 905 feet; Lomax and others' No. 11 Wilson, 50 bbls. at 1,527 feet; Pandem Oil Corp.'s No. 3 Hutcherson, 150 bbls. at 1,392 feet; No. 1 Parkey, dry at 1,800 feet; Waite Phillips and others' No. 3-A Wilson, dry at 1,732 feet; Staley and others' No. 14-C Wilson, 10 bbls. at 1,423 feet; Boss and others' No. 4 Darilek, dry at 1,425 feet; Boss and others' No. 5 Darilek, 30 bbls. at 1,426 feet; Craig and others' No. 1 Andrews, dry at 1,100 feet; Murchison and others' No. 1 Talbott, dry at 1,500 feet; Simms Oil Co.'s No. 2 Richardson, 35 bbls. of water and 45 bbls. of oil at 1,454 feet; Texhoma Oil & Refining Co.'s No. 5 Oldhom, 100 bbls. at 1,363 feet; No. 1 Wolf, 210 bbls. at 1,339 feet; Trio Production Co.'s No. 8 Brom, 10 bbls. at 1,412 feet; No. 9 Brom, 120 bbls. at 1,410 feet.

Young County

Bashara and others' No. 1 Marshall, dry at 718 feet; C. G. & C. Oil Co.'s No. 4-B Keathley, dry at 1,012 feet; Harris and others' No. 1 Simms, dry at 850 feet; Suggett and others' No. 1 Perkins, dry at 1,001 feet; The Texas Co.'s No. 1 Barry, dry at 1,334 feet; Texas Unity Oil Co.'s No. 1 Watson, dry at 1,001 feet; Tidal Oil Co.'s No. 13 Campbell, dry at 1,427 feet; Wolf and

others' No. 1 Leberman, dry at 1,150 feet.

Eastland County

Magnolia Petroleum Co.'s No. 10 Allaman, dry at 1,867 feet; Woods and others' No. 1-B Collins, 3,000,000 feet of gas at 880 feet; Kickok P. & D. Co.'s No. 1 Amis, 4,500,000 feet of gas at 3,206 feet; Root and others' No. 1 Kurklin, 7,000,000 feet of gas at 3,291 feet.

Callahan County

Brannon and others' No. 1, Block 28, 200 bbls. at 1,449 feet; Mitchell and others' No. 1, Block 15, dry at 792 feet.

Brown County

Conway Brothers and others' No. 2 Clark, dry at 1,279 feet; Eastland Oil Co.'s No. 1 Stone, dry at 1,510 feet; Infield Petroleum Co.'s No. 1 Graham, dry at 2,050 feet; Suddeth and others' No. 1 Byrd, 15 bbls. at 1,353 feet.

Shackelford County

Humble Oil & Refining Co.'s No. 1 McLemone, dry at 4,119 feet; Lake and others' No. 1 Black Brothers, dry at 1,202 feet; Milham Corp.'s No. 1 Casey, dry at 670 feet; Milham Oil Corp.'s No. S Clause, 11,500,000 feet of gas at 306 feet.

Mitchell County

California Co.'s No. 4 Elder, 200 bbls. at 3,072 feet.

Reagan County

Texon Oil & Land Co.'s No. 34, Group 1, University, 2,420 bb'ls. at 2,944 feet.

Scurry County

California Co.'s No. 1 Wood, dry at 3,734 feet.

Montague County

Benton and others' No. 1 Hinds, 90 bbls. at 963 feet; Texhoma Oil & Refining Co.'s No. 7 Howard, 100 bbls. at 1,170 feet.

Clay County

Cook and others' No. 2 Myers, dry at 392 feet.

Baylor County

Shaw and others' No. 6 Mills, dry at 1,421 feet.

Hutchinson County

Douglas Oil Co.'s No. 1 Whittenburg, 45 bb'ls. at 3,065 feet.

Wheeler County

Rook and others' No. 1 Phillips, 50 bbls. at 2,295 feet.

Wichita County Drilling

Burt and others' No. 1 Hansard, drilling at 2,183 feet; Clopton and others' No. 1 Willis, 300 feet; Dipon and others' No. 1 Holder, 900 feet; McCracken and others' No. 1 Waits, 1,405 feet; Magnolia Petroleum Co.'s No. 12 Beach, 790 feet; No. 10 Warren, spudding; Robinson and others' No. 22 Roller, drilling at 800 feet; Texhoma Oil & Refining Co.'s No. 2 Bentley, 700 feet; No. 1-A Beach, 1,960 feet; Vannest Oil Co.'s No. 19 M. K. & T., 750 feet; Panhandle Refining Co.'s No. 4 Jackson, fishing at 1,783 feet; Underwood Drilling Co.'s No. 1 Fassett, drilling at 200 feet; Apple and others' No. 1 Fisher, sand at 1,706 feet; Bullington and others' No. 13 Jennings, showing oil at 1,620 feet; Clark and others' No. 4 Chilson, showing oil at 693 feet; Culberson Co.'s No. 34 Waggoner Brothers, drilling at 800 feet; Dale and others' No. 9 Burnett, 900 feet; Dale Oil Corp.'s No. 20 Jennings, 1,511 feet; Duffy and others' No. 1 Schroeder, 1,656 feet; Hammon and others' No. 7-B Waggoner Brothers, 1,050 feet; No. 1-B Burnett, 1,790 feet; Hunter and others' No. 9 Waggoner Brothers, 300 feet; Johnson and others' No. 1 Friedly, spudding; K. M. A. Oil Co.'s No. 25 Munger, drilling at 1,100 feet; McCarty Oil Co.'s No. 1 Jennings, 1,802 feet; Magnolia Petroleum Co.'s No. 66 Allen, underreaming; No. 70 Honaker, drilling at 320 feet; No. 13 Maer, 875 feet; No. 9 Watkins, 978 feet; Mitchell and others' No. 1 Waggoner Brothers, 300 feet; Moran and others' No. 9 Waggoner, 100 feet; Panhandle Refining Co.'s No. 1 Roberts, 1,625 feet; Patterson and others' No. 5 Fisher, 1500 feet; Perkins and others' No. 4 Beaver Electra, 725 feet; Petroleum Production Co.'s No. 1-D Allen & Kemp, 900 feet; Shappell Oil Co.'s No. 7-A McCarty, 1,100 feet; Staley and others' No. 1 Hines, 800 feet; Texhoma Oil & Refining Co.'s No. 13 Waggoner Brothers, 1,422 feet; No. 2-D Waggoner Brothers, 1,603 feet; White Brothers' No. 2 Olds, 1,646 feet; Wolfe and others' No. 3 Daume, fishing at 1,830 feet.

Wilbarger County

Barkley and others' No. 10-A Stephens, drilling at 1,500 feet; No. 11-A Stephens, 800 feet; No. 2-B Stephens, cementing at 2,335 feet; No. 4-B Stephens, drilling at 2,295 feet; Bridwell and others' No. 8 Stephens, showing oil at 2,423 feet; Garretson and others' No. 1 Waggoner, fishing at 1,005 feet; Gose and others' No. 1 Woodward, drilling at 1,420 feet; Graham and others' No. 1 George, drilling at 2,335 feet; Gray Oil Co.'s No. 1 Waggoner, 1,412 feet; Humble Oil & Refining Co.'s No. 23 Castlebury, 1,565 feet; No. 20 Stephens, 775 feet; No. 22 Stephens, fishing at 2,027 feet; No. 38 Stephens, cleaning out at 2,375 feet; No. 40 Stephens, cementing at 2,274 feet; No. 41 Stephens, drilling at 1,864 feet; No. 5-G Waggoner, 928 feet; No. 4-H Waggoner, fishing at 1,873 feet; No. 5-H Waggoner, drilling at 1,269 feet; No. 6-H Waggoner, cementing at 1,886 feet; No. 3-I Waggoner, showing oil at 1,883 feet; No. 1-K Waggoner, drilling at 2,367 feet; No. 4-I Waggoner, 1,757 feet; No. 1-L Waggoner, 1,615 feet; No. 1-M Waggoner, cementing at 1,897 feet; No. 1-N Waggoner, drilling at 185 feet; No. 1-O Waggoner, spudding; No. 2-O Waggoner, drilling at 561 feet; Kolp and others' No. 10-A Waggoner, showing oil at 2,002 feet; Landreth Production Co.'s No. 4-D Waggoner, drilling at 2,425 feet; No. 7-F Waggoner, cementing at 1,872 feet; No. 2-I Waggoner, drilling at 1,463 feet; Lawson and others' No. 14 Waggoner, fishing at 1,960 feet; John McCamey and others' No. 1 Waggoner, drilling at 2,185 feet; McCamey and others' No. 8 Stephens, cleaning out at 2,340 feet; No. 18 Stephens, drilling at 1,020 feet; No. 28 Stephens, 2,259 feet; No. 31 Stephens, 960 feet; Magnolia Petroleum Co.'s No. 70 H. & T. C., 1,955 feet; No. 47 Piper, 875 feet; No. 51 Sumner, 938 feet; No. 1 Jiggs-Waggoner, shale at 2,655 feet; Milham Corp.'s No. 1-B Waggoner, setting casing at 2,320 feet; No. 2-B Waggoner, drilling at 1,215 feet; No. 1-A Waggoner, 1,005 feet; Murchison and others' No. 3 Ditto, 1,180 feet; Petroleum Production Co.'s No. 7-A Dill, 1,400 feet; Prairie Oil & Gas Co.'s No. 2-A Waggoner, 2,225 feet; Roy and others' No. 8 Bond, 1,895 feet; Roxana Petroleum Corp.'s No. 1-C Waggoner, 2,012 feet; Shamrock Oil Co.'s No. 1-B Waggoner, 980 feet; No. 1 Eslick-Waggoner, 1,550 feet; No. 1-K Waggoner, 995 feet; Staley and others' No. 12 Stephens, 1,930 feet; The Texas Co.'s No. 1 Dill, cementing at 2,276 feet; No. 1 Zipperle, drilling at 1,435 feet; Wood and others' No. 1 Dennis, 2,304 feet.

Archer County

Burton and others' No. 1 Stehlik, drilling at 1,400 feet; Cullum and others' No. 1 Mongold, 250 feet; Humble Oil & Refining Co.'s No. 1 Mongold, 1,600 feet; Pandem Oil Corp.'s No. 1 Jackson, 400 feet; Shappell Oil Co.'s No. 37 Jackson, cleaning out at 1,800 feet; No. 38 Jackson, drilling at 1,700 feet; Staley and others' No. 1 Kemp & Kell, 900 feet; Tidal Oil Co.'s No. 1 Mongold, 1,625 feet; Bridwell and others' No. 9 Wilson, showing oil at 1,608 feet; Burns and others' No. 2 Brown, drilling at 1,560 feet; Burns and others' No. 3 Brown, 1,335 feet; Empire Gas & Fuel Co.'s No. 4-A Wilson, spudding; Lewis and others' No. 1 Thompson, drilling at 750 feet; Lewis and others' No. 1 Wilson-McCrary, 1,325 feet; Looney and others' No. 1 Plowman, sand at 1,020 feet; Maxson and others' No. 5 Wilson, drilling at 1,426 feet; McCarty Oil Co.'s No. 16-B Wilson, showing oil at 900 feet; Muse and others' No. 1-B Jackson, failing at 1,539 feet; Phillips Petroleum Co.'s No. 90 White, drilling at 300 feet; Phillips Petroleum Co.'s No. 91 White, 100 feet; Waite Phillips' No. 4-A Wilson, showing oil at 1,718 feet; No. 9-B Wilson, drilling at 1,570 feet; No. 10-B Wilson, cementing at 1,734 feet; No. 11-B Wilson, 600 feet; No. 14-B Wilson, 1,480 feet; No. 2-A Wilson, setting casing at 1,527 feet; No. 37 Wilson, drilling at 1,500 feet; No. 38 Wilson, 1,410 feet; Riner and others' No. 31-B Wilson, 1,300 feet; No. 32-B Wilson, 900 feet; Roeser and others' No. 1 Wilson, 1,100 feet; Scott and others' No. 9 Parrish, cleaning out at 1,583 feet; Sorsfield and others' No. 1 Sloan, drilling at 215 feet; Staley and others' No. 3 Parrish, 1,574 feet; No. 4 Parrish, 300 feet; Texas Pacific Coal & Oil Co.'s No. 1 Wilson, showing oil at 1,596 feet; The Texas Co.'s No. 2 Andrews, drilling at 400 feet; No. 1 Dycus, 1,070 feet; White Eagle Oil & Refining Co.'s No. 1 Marcell, 1,490 feet; Wichtex Oil Co.'s No. 4 Jackson, 1,556 feet; Woodburn Oil Corp.'s No. 25-A Wilson, 1,605 feet; Woods and others' No. 1-A Wilson, 1,015 feet; Archer Oil Corp.'s No. 6-D Farmer, 1,100 feet; Camp Oil & Gas Co.'s No. 1 Farmer, 1,473 feet; Hammond and others' No. 1 Oldhom, 1,358 feet; Independent Oil & Gas Co.'s No. 3 Wolf, failing at 1,346 feet; Logan and others' No. 1 Logan, drilling at 1,265 feet; Morday Oil Co.'s No. 5 Anderson, sand at 1,419 feet; Perkins and others' No. 10 Anderson, drilling at 1,025 feet; Petroleum Producers Co.'s No. 1 Anderson, 200 feet; Red Bank Oil Co.'s No. 1 Dekinder, 1,240 feet; Riley and others' No. 1 Wilhelm, fishing at 1,170 feet; Sun Oil Co.'s No. 16 Farmer, drilling at 450 feet; Texhoma Oil & Refining Co.'s No. 3 Abercrombie, 1,335 feet; No. 2 Wolf, sand at 1,329 feet; American Refining Co.'s No. 5 Portwood, drilling at 1,210 feet; Atlantic Oil Production Co.'s No. 2 Falls County, 875 feet; Bass and others' No. 6 Darilek, 1,400 feet; British American Oil Co.'s No. 11 Rogers, 940 feet; Consolidated Oil Co.'s No. 1 Kreeger, 100 feet; Cook and others' No. 2 Kreeger, 200 feet; Harris and others' No. 1 Trinity Townsite, 878 feet; Magnolia Petroleum Co.'s No. 6 Portwood, failing at 1,405 feet; Mahlstedt Oil Co.'s No. 2 Louster, setting casing at 1,179 feet; Multiple Oil Co.'s No. 12 Hamilton, drilling at 640 feet; Pandem Oil Corp.'s No. 7 Cockrell, drilling at 1,100 feet; No. 4 Young, sand at 1,419 feet; Petroleum Production Co.'s No. 1 Portwood, setting casing at 1,418 feet; Prairie Oil & Gas Co.'s No. 1 Kreeger, drilling at 200 feet; Read and others' No. 7 Andrews, showing oil at 889 feet; Roxana Petroleum Co.'s No. 1 Kreeger, drilling at 600 feet; Shaw and others' No. 12 Monohon, 1,260 feet; Simms Oil Co.'s No. 3 Richardson, 1,120 feet; Sun Oil Co.'s No. 1 Falls County, 340 feet; Swastika Oil Co.'s No. 1 Kovar, 1,457 feet; The Texas Co.'s No. 17 Hill, 1,111 feet; Texhoma Oil & Refining Co.'s No. 1-A Kunkel, 1,173 feet; Trio Production Co.'s No. 4 Richardson, 100 feet.

Hutchinson County

Conyon Oil Co.'s No. 1 Whittenburg, drilling at 2,300 feet; No. 2 Whittenburg, 700 feet; Crosbie and others' No. 1 Smith, underreaming; Drysdale Oil Co.'s No. 1 Weatherby, drilling at 1,980 feet; Gibson Oil Co.'s No. 1 Whittenburg, drilling at 1,320 feet; Holmes and others' No. 1 Smith, spudding; Lenis and others' No. 1 Smith, drilling at 1,350 feet; McIlroy and others' No. 1 Smith, 2,215 feet; McKinney and others' No. 1 Weatherly, 2,557 feet; McIlroy Brothers' No. 2 Smith, 2,620 feet; Middleton and others' No. 2 Weatherly, 2,870 feet; Miller and others' No. 1 Whittenburg,

(Continued on Page 121)

COWDRAY INTEREST IN AMERADA CORP. PURCHASED BY DILLON, READ & CO.

During the past week an important step in the formation of what may be a new force in the Mid-Continent oil field was the purchase by Dillon, Read & Co. of New York of the Lord Cowdray interest in the Amerada Petroleum Corp.

While the exact figures of the transaction are not known, it is understood that Lord Cowdray owned 60 per cent of the Amerada stock, and that he was paid $7,000,000 for his interest in the company. The Amerada Co. was formed in 1920 by Lord Cowdray and his associates to produce oil in the Mid-Continent Field. It is reported to have 600,000 shares of stock outstanding, and according to reports, after full depletion and depreciation charges for the year 1925 are made the stock will show an earning of slightly more than $4 a share. The Amerada properties have been built entirely out of reinvestment of earnings, and at present it has no funded debts, bank loans or preferred stock.

The Amerada daily production is given below:

	Bbls.
Kansas	45
Oklahoma	5,507
Louisiana	218
Arkansas	3,931
Total	9,701

For the year 1925 the Amerada daily production did not average this figure, and the increase is due chiefly to the Arkansas production which is in the Smackover Field, and can hardly be classed as settled. In Oklahoma, the Amerada has been very fortunate, and has developed properties in many of the principal fields of the State, notably the Cromwell Field in Okfuskee and Seminole Counties, and the Brock Pool in Carter County, which it discovered and developed to splendid advantage.

Immediately after the sale of the Lord Cowdray stock, the resignation of T. J. Ryder as president of the Amerada was announced and he was succeeded in office by E. De Golyer, formerly vice president and general manager of the company. Mr. De Golyer is credited with much of the success of the Amerada Co., and has been its active head since organization. He is a geologist and a graduate of Oklahoma University. Born in Kansas, he has been identified with the oil industry since boyhood, and has been connected with Lord Cowdray's companies since the start of the Mexican fields.

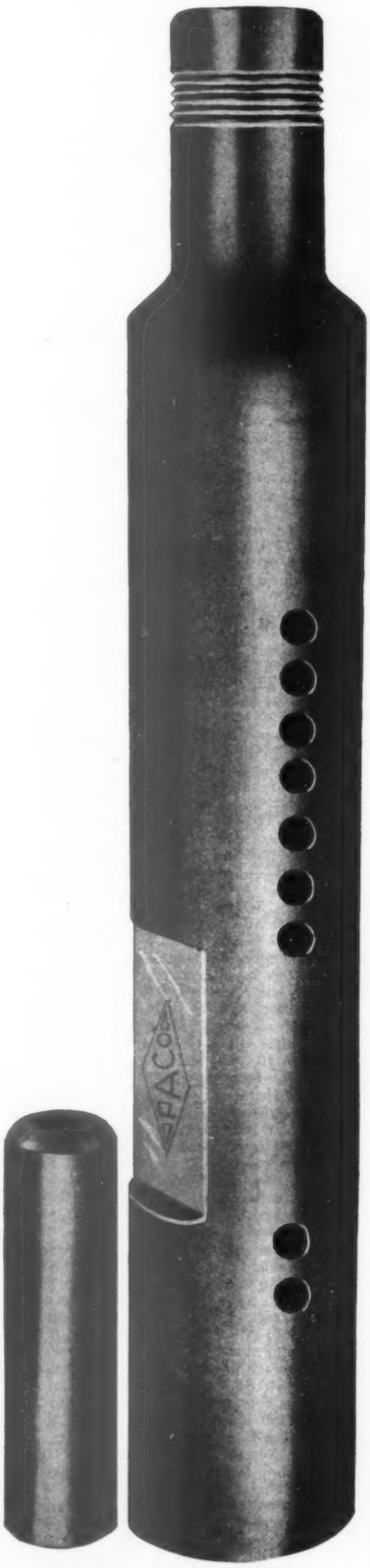
He entered the geological department of the Aguilar Co. when that concern was pioneering in Mexico and rose to a position of importance when the Lord

The Rt. Hon. Viscount Cowdray, of Cowdray, G. C. V. O.

Cowdray interests sold out. He was instrumental in the formation of the Amerada in 1920. Last spring at the annual meeting of the American Association of Petroleum Geologists at Wichita, Kan., he was elected head of that organization. A young man, he has gained for himself an enviable reputation in petroleum circles, and is expected by many to be the dominant factor in whatever mergers or consolidations may be effected as a result of the acquisition of the Lord Cowdray stock by the banking interests.

These Are the Genuine Licensees of the

Prosser Swivel Rope Socket



Alamo Iron Works
Algyre Machine Works
Bovaird & Seyfang
Breckenridge Fishing Tool Co.
Bridgeport Machine Company
Cree & Gallagher
Crotty & Company
Cushing Machine & Tool Co.
T. Cushing Tool & Supply Co.
Dunigan Tool & Supply Co.
Eldorado Machine & Tool Co.
Farley Machine Works
Federal Supply Co.
Fort Worth Drlg. Tool Co.
Hinderliter Tool Co.
Larkin & Co.
Larkin Packer Co.
Leidecker Tool Co.
Lone Star Tool Co.
Lucey Manufacturing Co.
Magnolia Petroleum Co.
Midwest Refining Co.
Murray Tool & Supply Co.
Muskogee Tool Co.
Norwalk Drilling Tool Co.
Oil Country Specialties Co.
Oil Well Supply Company
Chas. Phillips Tool Co.
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Oklahoma Field Operations

By J. L. Dwyer

Fuhrman Pool outlook seems brighter as result of Phillips Petroleum Co.'s well which started flowing from sand touched at 3,389 feet. Output probably 350 bbls. daily. Seminole County wildcat gets stray sand with small flow of oil. Garber Field continues decline. Sinclair plugs back deep well at Garber.

The spots of chief interest in the oil fields of Oklahoma last week were the Fuhrman Pool in Section 26-9-9, Hughes County, and the wildcat well of Bryan Brothers and the Carter Oil Co. in Section 4-7-6, Seminole County.

The prospects of the Fuhrman Pool were brightened considerably when the Phillips Petroleum Co.'s No. 2 Long, SE cor. NE SE, Section 27-9-9, started flowing from a sand touched at 3,389 feet and drilled to 3,390 feet. No tankage is set at the well and it is difficult to make an estimate of the flow, but observers place the productive figure at 350 bbls. a day as the well stands. The new well offsets to the west the Harjo lease of the Independent Oil & Gas Co. and the Transcontinental Oil Co., upon which the discovery well was drilled. The Phillips Petroleum Co.'s well is a quarter mile west and one location south of the discovery well.

There has been much debate about the Fuhrman Pool, and recent developments would indicate that the Transcontinental Oil & Gas Co., joint owners of the Harjo lease, will have a good producing property in the SW quarter of Section 26-9-9.

During the past week the Foster Investment Co. and the Independent Oil & Gas Co. found a failure in No. 1, SE cor. NW NW, Section 26-9-9, which had a hole full of water at 3,419 feet. The formations encountered in this well, which is a quarter mile north of the discovery well, indicate a severe drop from the discovery well. The formations of the Phillips Petroleum Co. well indicate a dip of 30 feet from the discovery well.

Strikes Stray Sand

In Seminole County, the wildcat well of Bryan Brothers and the Carter Oil Co. found what is evidently a stray sand in No. 1 Walker, SE cor. SE, Section 4-7-6. The sand was found at 2,753 feet and penetrated 2 feet. There have been many conflicting reports of the well's production and flows, and the consensus of opinion places the flow of the well as very small. The most unfavorable feature of the well is that there is practically no gas in the sand, a condition which does not make for good production in Oklahoma. The well is being swabbed occasionally and the average production made by the swab, and the flows which follow the swab, is 50 bbls. daily. The sand will be tested out and while it may not make a producing well it is a good "marker."

The Garber Field in Garfield County is slowly dropping into oblivion. On Saturday of last week it produced 24,540 bbls., including all sands.

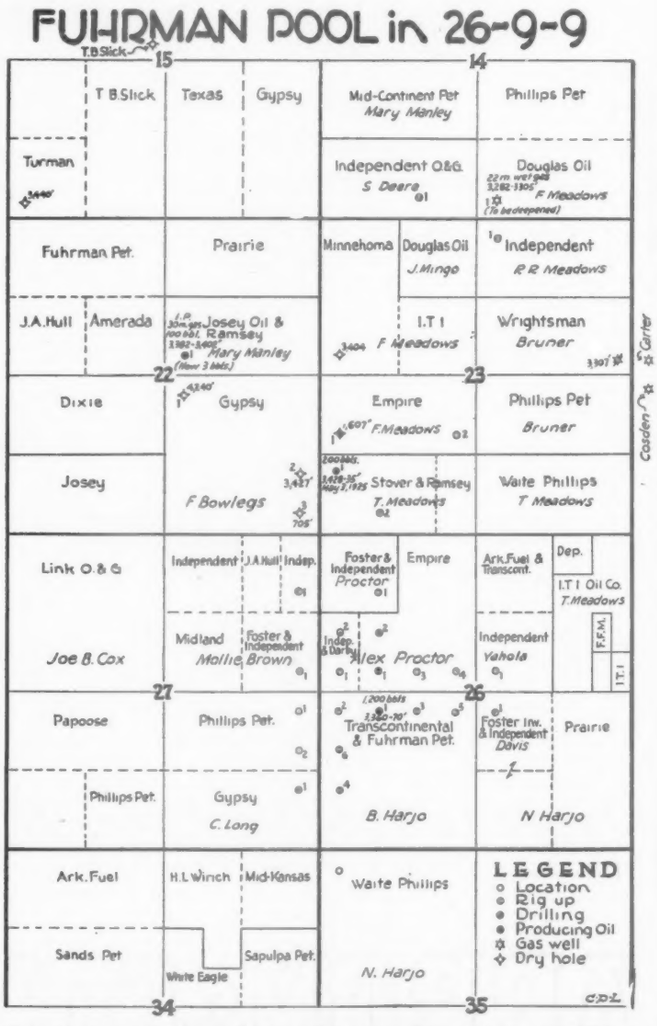
In the Cushing district the Magnolia Co.'s No. 30 Vance which started flowing three weeks ago at the rate of 800 bbls. daily has stopped flowing entirely and gone dead. Efforts to revive it will be made and in the event that they fail the well will be put on the pump. This was a Bartlesville sand well located in the CNL S half NW NE, Section 7-18-7.

In Hughes County, the Roxana Petroleum Corp. and John L. Brosk, Jr.'s No. 1 Emery, SW cor. NW, Section 28-7-8, is standing with 3,500 feet of oil in the hole from a formation topped at 4,315 feet.

Near Wewoka, the Magnolia Co.'s deep sand well, NW cor. NW, Section 5-7-8, is still flowing 3,925 bbls. from the deep Wilcox sand. This area was handed a surprise when W. R. Ramsey's No. 1 Amos, NE cor. SE SE, Section 31-8-8, missed the sand entirely and is drilling in lime at 4,163 feet. This well is a quarter mile north of the Magnolia well and limits the pool's production on the north. The 11 remaining wells which are being drilled to the deep sand are still above the last 200 feet of the sand, expecting the Dixie Oil Co.'s well, NE cor. NE, Section 5-7-8, a mile east of the Magnolia well.

In the Garber Field, the most interesting development is the Sinclair Oil & Gas Co.'s No. 26 S. Walker, which is the deepest well in the State. This well is being plugged this week from a total depth of 5,432 feet surpassing the record set by the Kingwood Oil Co. some years ago when its No. 1 in Section 7-7-10 was drilled to a depth of 5,281 feet. In the Garber Field, the Sinclair Oil & Gas Co.'s No. 1 Burns, C NE SE, Section 19-22-3w, is drilling at 5,040 feet.

In southern Oklahoma, the Magnolia Petroleum Co.'s No. 1, NW cor. SW SW, Section 15-2s-2w, in the "Wildcat Jim" region had sand at 1,044-60 feet and at 1,075-1,110 feet and is standing with 100 feet of oil in the hole. The tubing will be run and the well made ready for pumping.



Since the above map was made, the pool has been changed by the completion of a pumping well on the Independent Oil & Gas Co.'s Yahola lease in the SW cor. NE. A dry hole in the SE cor. NW NW, Section 26, has killed production in that direction from the discovery well. A flowing well drilled a quarter mile southwest of the discovery well by the Phillips Petroleum Co. (No. 2 Long, SE cor. NE SE, Section 27) improves the appearance of the region west. A close student of this territory believes that all locations on the north half of the south half of Section 26 will be producers.

A list of crude oil stored in the Burbank Field follows:

	Bbls.
Phillips Petroleum Co.	3,769,000
Roxana Petroleum Corp.	113,000
Sinclair Oil & Gas Co.	*2,000
Mid-Kansas Oil Co.	319,000
Mid-Continent Petroleum Corp.	361,985
George S. Bole	96,550
Gypsy Oil Co.	1,733,000
Carter Oil Co.	350,250
Dye-Tomlinson	52,486
Total	7,298,000

*In Sinclair tanks.

Tonkawa Production

The Tonkawa deep sand production by companies follows:

Company—	Wells	Prod.
Amerada Pet. Corp.	8	904
Blackwell O. & G. Co.	4	318
Comar Oil Co.	55	10,032
Marland Oil Co. and Mid-Continent Pet. Corp.	4	2,370
Louis Friedman	1	32
Gypsy Oil Co.	17	2,575
McMann Oil Co.	1	...
Pennok Oil Co.	7	329
Phillips Pet. Co.	1	27
T. B. Slick	7	1,277
The Texas Co.	10	2,538
Wentz Oil Corp.	7	11,687
Total	131	32,089

This field has produced a total of 27,614,482 bbls., including the production above which is the daily average for the week ending January 15.

Creek County

Alvord & West have spudded No. 1 Freeman, SE cor. NE SW, Section 14-17-8. Atlantic Oil Producing Co. has completed No. 6, CEL SW SE, Section 14-17-8, for 60 bbls. after a shot of 100 quarts in sand 2,248-81 feet. Waite Phillips Co. has the rig and tools in for No. 2 Abe, SE cor. NE SE, Section 27-17-8, and for No. 3 Abe, NW cor. NE SE, Section 27-17-8, and No. 4 Abe, NE cor. SE SE, Section 27-17-8. Margay Oil Co. has spudded No. 1, SW cor. NE SE, Section 4-16-8. C. G. Tibbens has spudded No. 2, SW cor. NE, Section 25-15-8, and No. 1-A, SW cor. SE, Section 1-14-8, is spudded and shut down. Skelly Oil Co.'s No. 10, SE cor. NE SW, Section 12-14-8, is making 50 bbls. after a shot of 40 quarts in sand 2,362-2,412 feet. The Texas Co. has completed No. 2, NW cor. SW SE, Section 12-14-8, for 50 bbls. after a 100-quart shot in sand 2,351-91 feet. Texas & Pacific Coal & Oil Co. has the timbers on the ground for No. 4 Brown, SW cor. NW NE, Section 12-14-8.

Atlantic Oil Producing Co. has completed No. 6, CNL SW SE, Section 14-17-8, for 22 bbls. after a shot of 60 quarts in sand 2,240-65 feet. Olean Petroleum Co.'s No. 6 C S half NW NW, Section 32-17-8, made 40 bbls. after a shot of 80 quarts in sand 2,323-56 feet. Prairie Oil & Gas Co. has a gas well in No. 10, SW cor. SE NW, Section 5-16-8. Sand was 2,835-2,911 feet and the well is shut in with 8,000,000 feet of gas. Dixie Drilling Co. has abandoned No. 1, SE cor. SE, Section 1-17-9, at 3,095 feet. Amerada Petroleum Co. has abandoned No. 2 Jaconta, NW cor. SW NE, Section 19-17-10, at 1,044 feet. A. B. Ice has a well in No. 2, CEL NE SE, Section 19-17-10. Sand was 2,097-2,152 feet and the well is good for 15 bbls. after a shot of 100 quarts. Pioneer Petroleum Co.'s No. 5, NW cor. SW NE, Section 24-17-10, is good for 30 bbls. after a shot of 60 quarts in sand 1,839-90 feet. Ny Okla Oil Co. has built the rig for No. 2 Abraham, SE cor. NW NE, Section 32-16-9.

In the Depew district, The Texas Co.'s No. 4, SE cor. SW NW, Section 13-14-8, is completed for 30 bbls. after a shot of 160 quarts in sand 2,395-2,457 feet. Magnolia Petroleum Co. has the rig up for No. 4 Richard, NW cor. SE SW, Section 32-19-7. Gled Oil Co. has rigged up No. 2 Peters, CSL SW NW NW, Section 13-19-8. Frank Billingslea has completed a gas well in No. 1, NW cor. SW, Section 7-18-9. Sand was 2,340-65 feet and the well is shut in with 6,000,000 feet of gas. J. H. Wright's No. 3, NW cor. SE SE, Section 23-17-10, is good for 25 bbls. from sand 2,490-96 feet.

Gledden & Holmes have the rig up for No. 1-A Island, CEL SE SW, Section 15-19-10. D. B. Mason's No. 1, SE cor. SW NW, Section 36-17-9, is dry and abandoned at 1,398 feet. Burk Hoffield has spudded No. 7, CSL NW SW NW,

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Section 33-16-9. Shaffer Oil Co. and Sherry have a dry hole in No. 1, NW cor. SE SE, Section 1-16-10 at 3,467 feet.

Seminole County

Twin State Oil Co.'s No. 1, SW cor. SW, Section 8-9-8, had sand 3,265-90 feet with a total depth of 3,295 feet and was shot with 40 quarts. It is being cleaned out. Mid-Continent Petroleum Co.'s No. 1, NW cor. NW, Section 17-9-8, had sand 3,282-3,315 feet and made 40 bbls. Magnolia Petroleum Co. is rigging up No. 1 Walker, NW cor. SW NW, Section 23-8-7. W. R. Ramsey's No. 3, CSL NE NE, Section 36-8-7, is good for 60 bbls. from sand 3,117-65 feet. Harry Newman and others are drilling at 450 feet in No. 1, NE cor. NW, Section 9-8-8.

In the Wewoka area, the Magnolia Petroleum Co. is rigging up No. 5 Grontz, SE cor. SW SW, Section 32-8-8, the rig is being built for No. 1 Parker, SW cor. SE SW, Section 32-8-8, and the location is made for No. 2 Parker, SE cor. SW, Section 32-8-8.

Transcontinental Oil Co. has completed No. 1, NE cor. SW, Section 22-7-7, for 15 bbls. from sand 2,195-2,215 feet. Amerada Petroleum Corp. has the rig on the ground for No. 3 Dennis, C S half N half NW, Section 5-7-8, and the rig is being built for No. 3 Dennis, NE cor. NW, Section 5-7-8. Independent Oil & Gas Co. and Atlantic Oil Producing Co. are rigging up No. 1 Senior, SWL, Section 5-7-8. Champlin Brothers and others have the rig on the ground for No. 1 McIntosh, NE cor. NE, Section 7-7-8.

Hughes County

Sands Petroleum Co. has built the rig for No. 1 Harnage, SE cor. SE, Section 10-8-9. Dixie Oil Co.'s No. 3, NW cor. SE SE, Section 18-8-10, had sand 2,666-96 feet with a total depth of 2,751 feet and was plugged back to 2,700 feet and shot with 5 and 10 quarts and made 180 bbls. Independent Oil & Gas Co. and others' No. 1, SE cor. NW, Section 24-8-10, had sand 2,874-2,900 feet with 2,000,000 feet of gas.

Pawnee County

Near Cleveland, Pete Adamson and others have completed No. 5 Sigan, CSL NW NW SW, Section 32-31-8. Wilcox sand was found 2,930-34 feet and the well is making 175 bbls. Moody & Adamson have completed No. 2, CEL SE SW, Section 6-20-8, for 65 bbls. on the swab after a shot of 50 quarts in sand 2,160-80 feet. Southwestern Oil Felds Co. has spudded No. 16 Bank, CEL SW NW, Section 24-20-8.

Dixie Oil Co. has abandoned No. 1, NW cor. SE SW, Section 27-21-8, at 3,143 feet. Tidal Oil Co.'s No. 7, NW cor. SE NE, Section 35-21-8, had sand 2,364-2,404 feet and 2,573-98 feet and is being cleaned out after a shot of 40 quarts. It is estimated at 25 bbls. John H. Markham, Jr., is cleaning out to drill an old well deeper in No. 1 Clark, SW cor. SW, Section 9-20-7. Old total depth was 2,627 feet. Johnson and others have abandoned No. 3, NE cor. NW SE, Section 25-20-7, at 3,162 feet. Selby Oil & Gas Co. has the rig on the ground for No. 6 Van Eman, CEL NE SE, Section 23-20-8.

Garvin County

Magnolia Petroleum Co. has a rig on the ground for No. 8 Harris, SE cor. NE SW, Section 16-1-3w. Pope & Wilson have completed a well in No. 1, NE cor. SW, Section 17-1-3w. Sand was 1,688-1,702 feet and 1,772-90 feet and the well is pumping 60 bbls.

Tulsa County

Sand Springs Home has a dry hole in No. 4, CEL SW SE, Section 13-19-11, which is being plugged from 2,190 feet. Schreckergost, Wilson and others have a duster in No. 1-A, NE cor. NE, Section 28-18-13, which is abandoned at 1,716 feet. Alboe Oil Co. has abandoned the location for No. 1, SE cor. SW SE, Section 5-17-14.

Osage County

Sand Springs Home has moved in a machine for No. 1-A, SW cor. SE SW, Section 2-22-12. J. H. Middleton has a Bartlesville sand gas well in No. 1, NE cor. NE, Section 26-22-13. Sand was 920-35 feet and the well is completed with 150,000 feet of gas. Tiffany Brothers are drilling at 750 feet in No. 2 Ward, NW cor. NE NE, Section 31-22-14.

Winona Oil Co. has completed No. 5, CEL SE, Section 20-29-9, for 25 bbls. after a shot of 120 quarts in sand 1,527-51 feet. L. C. Duffield's No. 16, NW cor. SW SW, Section 35-29-10, is making 10 bbls. naturally from the Burgess sand found 1,750-68 feet.

In the Burbank region, the Phillips Petroleum Co. has the rig on the ground for No. 9, CWL NW NW SE, Section 2-27-5.

Foster, Davis and others have built the rig for No. 10, C SW NE, Section 17-25-9. C. B. Peters has rigged up a machine for No. 4, C SW NE, Section 32-24-9. Indian Territory Illuminating Oil Co. has rigged up a machine for No. 338, CWL SW NE SE, Section 27-25-11. Titus & Norris are drilling at 610 feet in No. 1, CNL NE, Section 29-25-12. Osage Arrow Oil Co.'s No. 19, C N half SE SE, Section 14-22-10, is completed for 15 bbls. after a shot of 120 quarts in sand 1,712-44 reet. Oklahoma Natural Gas Co.'s No. 707, CSL SW SE, Section 2-21-10, is completed for 750,000 feet of gas from sand 1,562-71 feet.

Elliott & Smith have spudded a twin well in No. 22, NE cor. NW, Section 30-21-12. Winona Oil Co. has spudded No. 3, SE cor. NE, Section 29-20-12.

Okmulgee District

Noble Oil Co. has a machine on the ground for No. 5 Adams, SE cor. NW SW, Section 20-15-12. H. C. Detrick has spudded No. 1, SE cor. SE, Section 21-14-12. Kingwood Oil Co. has the rig up for No. 1 Berryhill, SE cor. NE, Section 21-14-12. T. A. Johnston Co. and others have the rig up for No. 3 Colbert, CWL SW NW, Section 22-14-12. The Texas Co. has built the rig for No. 1 Ard, NW cor. SW, Section 22-14-12. Hazlett and others are rigging up No. 1 Kannard, CWL SW SE, Section 25-14-12.

West of Bald Hill, the Independent Oil & Gas Co. and the Devonian Oil Co. have completed No. 6, SW cor. SE SW, Section 7-15-13, for 100 bbls. in sand 2,676-84 feet after a shot of 5 quarts. J. J. Schock and others have completed a gas well in No. 1, SW cor. SE SW, Section 9-15-13. The hole had a total depth of 2,502 feet and was plugged back to sand found 1,932-35 feet and shut in with 2,000,000 feet. W. B. Pine's No. 6 Doyle, CNL NE NW, Section 18-15-13, is making 100 bbls. after a shot of 2½ quarts in sand 2,702-15 feet.

At Bald Hill, the Transcontinental Oil Co.'s No. 16, C NE, Section 23-15-14, made 2,000,000 feet of gas and 5 bbls. oil from sand 1,692-1,721 feet. Clarion Oil Co. has a dry hole in No. 6, NW cor. NE, Section 12-14-13, which is dry at 2,431 feet. North of Morris, the Wick Petroleum Co.'s No. 8, CSL NW SW, Section 10-14-14, found a dry sand 1,837-48 feet and was plugged back to sand 1,215-40 feet and shot with 40 quarts. It is making 10 bbls. Elm Oil Co. has a machine on the ground for No. 9 Fields, SE cor. NE SE, Section 13-14-14. J. E. Wallace has completed No. 2, NE cor. NW NW, Section 14-14-14, for 20 bbls. after a shot of 100 quarts in sand 1,110-35 feet. J. G. Haas, No. 13, NE cor. SW NW, Section 15-14-14, is making 20 bbls. after a shot of 20 quarts in sand 1,500-14 feet.

Walter Meagher and others have abandoned the location for No. 4, NW cor. SW, Section 14-15-15. Harsher & Slushers' No. 3, NE cor. SE NW, Section 35-15-16, is dry and abandoned at 1,778 feet.

In the Josey Pool, the Josey Oil Co. is drilling an old well deeper in No. 3 Felds, SE cor. NW NW, Section 33-12-11. Old total depth was 2,902 feet and the well is drilling at 2,950 feet. A. D. Morton and others have completed No. 7, SW cor. NE, Section 7-12-12, for 25 bbls. in sand 2,476-2,571 feet.

J. K. Gardner has the rig on the ground for No. 9 Foshee, NE cor. SE NW, Section 4-13-14.

C. H. Lebow is rigging up No. 12 Doyle, CSL NE SW, Section 15-13-14. W. R. Summerville has a dry hole in No. 9, CNL NE NW SW, Section 25-13-14, which will be plugged from 2,058 feet.

Sequoyah County

H. B. Lyman has spudded No. 1, NE cor. SW, Section 15-11-26.

Carter County

In the Brock Pool, the Amerada Petroleum Corp. has rigged up No. 23 Baptiste, SE cor. SW NE, Section 20-5s-1, and No. 2, C S half NW NW, Section 34-5s-1, is completed for 17 bbls. on the pump from sand 1,202-16 feet, and a machine is being moved in for No. 3 Ledbetter, CSL NW NW NW, Section 34-5s-1.

Stephens County

Flowers & Frazier have built a rotary rig for No. 1 No Name, NE cor. NE, Section 25-2-9w. Magnolia Petroleum Co. is drilling at 350 feet in No. 1, SW cor. SE, Section 26-2-9w. Eagle Creek Oil Co. is rigging up a rotary for No. 8 Brown, CSL NE SE NE, Section 26-1-9w.

Humble Oil Co. has a dry hole at 2,920 feet in No. 1, SW cor. NE, Section 1-2-4w.

Jefferson County

Fain-Muse and others have built a rig for No. 1 Billy, SW cor. NW, Section 27-6s-6w. L. C. Hivick and others are spudded and shut down in No. 1, NE cor. NE, Section 23-7s-7w.

In the Seay Pool, the Carter Oil Co.'s No. 1, SE cor. NW NE, Section 33-6s-5w, had the sand 1,427-28 feet and is making 1,300 bbls., 2½ per cent b. s. Carter is building a rotary rig for No. 2 Jones, SW cor. NW NE, Section 33-6s-5w. Humble Oil Co. has completed No. 4, NW cor. SW NW, Section 34-6s-5w. The well had a total depth of 1,840 feet and was plugged back to the sand found 1,385-1,400 feet and it is pumping 15 bbls. Humble's No. 5, SW cor. NW, Section 34-6s-5w, is pumping 100 bbls. of a fluid 30 per cent oil from sand 1,503-16 feet.

Lincoln County

In the Davenport Pool, the Prairie Oil & Gas Co. has built the rig for No. 3 Modewell, NE cor. SW, Section 35-15-5. The Carter Oil Co. has abandoned the location for No. 4, NW cor. SE SE, Section 6-15-6. Magnolia Petroleum Co. has completed No. 11, SE cor. NW, Section 2-14-5, for 420 bbls. from sand 3,282-3,377 feet and No. 16, SE cor. NE SW, Section 2-14-5, made 75 bbls. the first 12 hours from sand topped at 3,290 feet and is still drilling in sand at 3,350 feet. The Texas Co.'s No. 2, SW cor. NW SE, Section 2-14-5, had sand 3,272-3,369 feet and made 600 bbls. after a shot of 80 quarts. Amerada Petroleum Corp's No. 3, NE cor. NW SW, Section 3-14-5, is completed for 600 bbls. after shots of 10 and 15 quarts in sand 3,430-48 feet. The well was making 200 bbls. naturally before the shot. Amerada's No. 4, NW cor. SW, Section 3-14-5, found sand 3,422-65 feet and made 720 bbls. naturally. It was shot with 10, 15 and 40 quarts and is making 600 bbls.; the rig is built for No. 5 Belles, SW cor. NW SW, Section 3-14-5, and for No. 6 Belles, SE cor. NW SW, Section 3-14-5, and the location is made for No. 7 Belles, SW cor. NE SW, Section 3-14-5. Prairie Oil & Gas Co.'s No. 13 Stout, NW cor. SW NW, Section 3-14-5, had sand 3,420-65 feet and made 220 bbls. after being shot with 20 and with 15 quarts. It was making 200 bbls. naturally before the shot. Magnolia Petroleum Co.'s No. 2, SE cor. NE, Section 4-14-5, had sand 3,432-69 feet and made 186 bbls. after a shot of 60 quarts. The Texas Co.'s No. 1, NE cor. SE, Section 4-14-5, is making 320 bbls. after a shot of 20 quarts in sand 3,458-67 feet. Magnolia Petroleum Co. has the rig up for No. 1 Chapman, NW cor. SE, Section 10-14-5.

Phillips Petroleum Co.'s No. 1, NE cor. SE NE, Section 10-14-5, had sand 3,350-3,401 feet and was shot with 30 and with 80 quarts and is making 400 bbls.

Olean Petroleum Co. has spudded No. 2, SW cor. NW NW, Section 24-19-4.

(Continued on Page 110)

Kansas Oil Field News

By J. L. Dwyer

The principal activity in Kansas at present is in Lyon County, northeast of the "Golden Lane" of Greenwood County. This territory has broken into the production columns during the past six months, and at present is dotted with rigs. The activity has resulted in the advancing price of acreage.

There were no completions in the Rainbow Bend last week and the daily production is holding about the same 5,500 bbls.

In the Keighey district the Empire Gas & Fuel Co.'s well, NW cor. NE, Section 27-27-7, had sand 2,720-47 feet with the first oil at 2,725 feet and the hole filled up 400 feet over night. The well will be shot.

West of the Rainbow Bend Pool, the Marland Oil Co.'s well, offsetting the well of the Phillips Petroleum Co., had sand 3,174-78 feet with a small show of oil and is drilling in chat at 3,263 feet with another small show of oil. The well is SE cor. NE, Section 24-33-2. The Phillips well is still producing 100 bbls.

Butler County

In the El Dorado district, the Empire Gas & Fuel Co.'s No. 83, C NW, Section 28-25-5, had shallow sand 649-68 feet and made 15 bbls. naturally. No. 29, NW cor. NE NE, Section 30-25-5, is dry and abandoned at 2,625 feet. No. 14, C NE SW, Section 19-26-5, is good for 45 bbls. from sand 2,670-72 feet.

In the Leon Pool, Hoyt and others have a well in No. 7, SE cor. NE NE, Section 19-27-6, which had sand 2,725-40 feet and was shot with 40 and with 10 quarts and is good for 15 bbls. Amerada Petroleum Corp. is rigging up No. 2 Dingee, NE cor. NW SE, Section 22-27-7. Flack, Dawson and others' No. 1, NE cor. SW SE, Section 22-27-7, is good for 50 bbls. from sand 2,704-37 feet. Greenland Oil Co. has a hole full of oil and is running the tubing in No. 1, SE cor. SE, Section 28-27-7, where sand was 2,729-54 feet. In the Blankenship region, John Rogers and others have spudded No. 11, SW cor. NE NW, Section 29-26-8. Federal Oil Co. has completed No. 4, C N half NW SW, Section 29-26-8, and the well is making 100 bbls. of oil and 25 bbls. of water after a shot of 120 quarts in sand 2,672-2,732 feet; No. 6, SW cor. NW SW, Section 29-26-8, is dry and abandoned at 2,760 feet. In the Augusta region, the Magnolia Petroleum Co.'s No. 5, CWL SW SW, Section 25-27-4, is good for 20 bbls. after a shot of 30 quarts in sand 2,027-33 feet.

Mississippi Valley Oil Co. has spudded No. 1, SW cor. NW SW, Section 14-28-6, and John Connell has spudded No. 1, NE cor. NE, Section 20-28-6. Greenland Oil Co. has the rig on the ground for No. 1 Gilmore, CWL NW NE SE, Section 12-25-6. Lewis Oil Co. has completed No. 1, SW cor. NE, Section 32-26-6, for 25 bbls. after a shot of 25 quarts in sand 2,774-93 feet. Vickers and others have rigged up No. 1 Hemenorer, NE cor. NW, Section 9-27-7. Amerada Petroleum Corp.'s No. 1, SE cor. NW SE, Section 22-27-7, is making 250 bbls. from sand 2,670-95 feet after a shot of 30 quarts; and No. 3 Dingee, SW cor. NW SE, Section 22-27-7, is rigged up. Phillips Petroleum Co. has spudded No. 1, SE cor. NE SW, Section 22-27-7. Sinclair Oil & Gas Co. has built the rig for No. 3 Barnhill, NW cor. NE SE, Section 22-27-7. The Texas Co. is rigging up No. 1 Truesdale, SE cor. SW, Section 22-27-7. Phillips Petroleum Co.'s No. 1, NE cor. NW, Section 27-27-7, swabbed 632 bbls. from sand 2,709-50 feet after a shot of 120 quarts.

Mid-Kansas Oil Co. has a rig on the ground for No. 1 Troup, SE cor. NE,

(Continued on Page 109)

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Gulf Coast Oil Operations

By P. L. McGreal

Yount-Lee Co.'s No. 3 McFaddin, southeast of Spindletop, estimated 5,000 bbls. The Texas Co.'s No. 3 Taylor, Boling Dome, making 5,600 bbls. through larger choke. Rycade Petroleum Corp.'s Nash Dome well now doing 700 bbls. Two Lytton Springs wells with showings since found standing in oil.

HOUSTON, Tex., Jan. 18.—The Gulf Coast division is becoming a region of sensations, all the more so because they are unexpected. With new domes opening almost weekly the old spots refused to be pushed off the oil map. The feature of this week's news is a 5,000-bbl. flowing well, off the southeast side of the Spindletop Pool, which came in Wednesday night at 2,780 feet. It is the Yount-Lee Oil Co.'s No. 3 on McFaddin's pasture, some 2,000 feet off the dome where wells have been producing from caprock around 900 feet for 24 years. The oil tests 34 gravity and is low temperature. Last September the same company got a well in No. 2 McFaddin at 2,560 feet that flowed 1,000 bbls. initially but soon sanded and was worked over. It is now making 100 bbls.

These wells are the culmination of years of effort to find a deep sand off the sides of the original Coastal producing dome. W. B. Flynn is now drilling a test off the southwest side at 1,210 feet.

The Gulf Production Co., The Texas Co., the Rycade Petroleum Corp., the United Oil Co., Wilson & Broach have all tried to find a deep sand on the southeast side, but were unable to develop wells, although several of these tests got showings of oil and considerable gas, but were apparently located too far out from the base of the dome. The Spindletop Dome or elevation is only a few feet above sea level. The old producing area embraced a little more than 200 acres.

The Texas Co.'s No. 3 Taylor on the southwest side of the Boling Dome in the southwestern part of Wharton County, averaged 4,500 bbls. per day, flowing since it was brought in four weeks ago. Late in the week a larger choker was placed on the well and the flow increased to 5,600 bbls. The Texas Pipe Line Co. is laying an 8-inch line from West Columbia to the Boling Pool, a distance of 22 miles. The company has been shipping out in tank cars.

The Rycade Petroleum Corp.'s No. 5 Nash, the well brought in last week off the Nash Dome, on the line of Fort Bend and Brazoria Counties, is averaging 700 bbls. per day, flowing into pits and earthen tanks. Steel storage is being constructed.

The above in brief is the status of the latest discoveries around new domes or deep sand producers off the side of shallow sand domes.

Daily Gross Production

The estimated daily average gross production for the week ending January 16 in the Coastal pools is placed at 96,220 bbls. This does not include the late well at Spindletop. The gross figures represent an increase of 3,050 bbls. from the previous seven-day period. The Texas pools are credited with 84,410 bbls. of the total and those in Louisiana with 11,810 bbls. The figures include 31 producing areas.

The estimate for each district is as follows:

District—	Gross Bbls.
Boling	4,500
Batson	1,350
Blue Ridge	705
Big Creek	1,250
Barber Hill	115
Dayton	40
Damon Mound	1,075
Edgerly (La.)	390
Goose Creek	8,750
Humble	4,525
Hull	15,300
High Island	25
Jennings (La.)	1,175
Lockport (La.)	2,960
Markham	80
Nash Dome	700
Orange	17,350
Pierce Junction	1,425
Piedras Pintas	1,500
Spindletop	1,115
Saratoga	1,625
Sour Lake	4,110
South Liberty	9,120
Vinton (La.)	7,200
West Columbia	9,600
Welsh-Anse La Bute	85
*Miscellaneous	150
Total	96,220

*Includes Kleberg County, Washington County, Nacogdoches, Iberia and scattering spots.

Southwest Fields

The estimate for the Southwest Fields for the week is placed at 39,850 bbls., compared with 39,796 bbls. last week. The estimate for each field is as follows:

Luling	21,200
Laredo	3,450
Somerset	2,300
Calliham	250
Rockdale-Minerva	990
Jim Hogg County	3,210
Lockhart	8,450
Total	39,850
Grand total for week	136,070
Grand total last week	132,966
Net increase	3,104

Piedras Pintas is included with the Gulf in order to keep the saline domes separate, although the oil is lighter gravity than the usual Coastal product.

A summary of operations in the pools for the week shows 26 wells completed, of which 4 were dry and 3 salt water holes, leaving 19 producers. The new production is 6,573 bbls., or 1,573 bbls., omitting the Yount-Lee Oil Co.'s deep sand flowing well at Spindletop. It will thus be seen it was rather a quiet week.

At Boling the Atlantic Oil Producing Co.'s No. 1 Taylor, 400 feet northeast from the flowing well, is drilling around 2,700 feet and should get to the sand in about two weeks. The Texas Co. got the pay in No. 3 Taylor at 3,338 feet. That company is rigging No. 4 Taylor, 175 feet northwest of its producer. The Atlantic Co. is rigging No. 2 Taylor and has a location for No.3 The Humble Oil & Refining Co. has a location for No. 1 Hawes, recently purchased lease. The Gulf Production Co. is rigging No. 1 Borden. The Texas Co. has made a location for No. 1 Floyd. The Sun Oil and Sinclair Companies have locations northwest of the well.

Nash Dome

Around the Nash Dome, which is almost exclusively the Rycade Petroleum Corp.'s, with a total of 11,000 acres under lease, that company is fishing in No. 4 Wisdom and rigging No. 2 Flessner. A location has been made for No. 3, J. Meier. No. 5 Wisdom was abandoned in cap at 1,787 feet.

At Spindletop, the Gulf Production Co.'s No. 216 Gladys is pumping 15 bbls. at 875 feet. The Lillian Oil Co.'s No. 2 Terrell is bailing at 950 feet as is the Ham-Brechlin Drilling Co.'s No. 2 Gladys at 780 feet.

The Rio Bravo Oil got salt water in No. 3 Bryan at 3,175 feet in the Saratoga Pool.

In the Sour Lake Pool, The Texas Co.'s No. 270 fee will pump at 2,100 feet, after working over. The Primrose Oil Co.'s No. 1 Finkelstein will also make a pumper at 1,760 feet. M. E. Peveto's No. 11 Carpenter is pumping 12 bbls. at 725 feet.

On the north side of the Batson Pool, the Peer Oil Co.'s No. 1 Christian bailed salt water at 3,170 feet and is being deepened. The Kirby Pet-Capitol Oil Co.'s No. 3 Hodges is pumping 40 bbls. at 3,475 feet. The East Batson Oil Co.'s No. 11 State land is making 5 bbls. at 1,025 feet and the Paraffin Oil Co.'s No. 63 Paraffin is a 5-bbl. well at 400 feet.

In the Goose Creek Pool, the Humble Oil & Refining Co.'s No. 30 Peninsula is heading 300 bbls. at 4,300 feet. Same company's No. 29 Peninsula is making 75 bbls. at 2,900 feet and No. 12 Smith will pump at 2,500 feet. The Gulf Production Co. has a pumper at 4,250 feet in No. 19 J. Galliard and the Powell Oil Co.'s No. 6 Bryan shows for a pumper at 4,515 feet.

In the Orange Pool, the Brownie Babbittee Oil Co.'s No. 9 McLean is flowing 100 bbls. by heads at 3,425 feet. The Edgerly Petroleum Co.'s No. 1-B Carbello will make a pumper at 3,375 feet.

In the Hull Pool, the Humble Oil & Refining Co.'s No. 19 Guedry, which came in last week flowing 2,400 bbls. at 3,185 feet, is now doing 1,000 bbls., showing 29 per cent water. The Gulf Production Co.'s No. 61 Phoenix is flowing 1,600 bbls. at 3,450 feet. The Mecom Oil Co.'s No. 8 Mecom and the Yount-Lee Oil Co.'s No. 12 Merchant pumped dry at 4,475 feet and 2,400 feet, respectively.

South Louisiana

In the Vinton Pool, the Edgerly Petroleum Co.'s No. 8 Vincent is pumping 200 bbls. at 3,200 feet. The Gulf Refining Co.'s No. 68 G. N. G. is making 30 bbls. at 2,400 feet.

In the Jennings (Evangeline) Pool, The Texas Co.'s No. 103 Latrielle is a salt water well at 1,875 feet.

The Gulf Production Co.'s No. 5 Moore, off the new Orchard Dome northwest of Rosenberg, Fort Bend County, is reported drilling in 32 feet of sand at 3,800 feet. It was drilled deeper from 3,400 feet where it showed some oil and gas last week.

The Yount-Lee Oil Co.'s No. 3 McFaddin at Spindletop is flowing with the drill pipe in the hole. The well blew in after the screen had been set. The temperature is 70 degrees.

The Refugio Oil & Gas Co.'s No. 1 W. Heard in the Refugio County gas district is estimated at 72,000,000 feet. Several of the gas properties in that field are in litigation, operating under receiverships.

Lockport District

More development is being planned for the Lockport district, near Lake Charles, Calcasieu Parish, Louisiana. The Vacuum-Gulf's joint No. 6 Miller is drilling below 1,400 feet with No. 5 fishing at 4,400 feet. Locations have been made for Nos. 7, 8 and 9 Miller. No. 2 Farquahar is cleaning out the hole at a depth of 3,700 feet. No. 1 Friedberg & Wolf is drilling deeper at 4,635 feet with a location for No. 2 made. No. 2 Bordages is rigging to start drilling. The Marland Oil Co. of Texas' No. 1 Phoenix is straightening the hole at 5,650 feet.

The Standard Oil Co. of Louisiana is starting No. 5 Industrial Lumber Co. off the new saline dome south of Stark, La., after abandoning No. 4 in cap rock at 1,306 feet.

In other parts of the parish, the Union Sulphur Co. is rigging No. 2 Dorion.

(Continued on Page 107)

News from Fields of Canada

By Victor Lauriston

CHATHAM, Ont., Jan. 16.—In the Turner Valley Field, southwest of Calgary, a number of drilling tests are now reported well advanced. MacLeod Oil Co.'s No. 2, Section 1-20-3w5, is reported down 3,033 feet and drilling with about 500 feet of 54 gravity crude oil in the hole.

Vulcan Oils' Ltd.'s offset to Royalite No. 4, is reported down 3,520 feet and drilling. This test is getting fairly close to the producing horizon in the Madison limestone which in Royalite No. 4 was encountered at 3,740 feet.

Dalhousie Oil Co.'s No. 3 deep test, Section 13-20-3w5, the old Alberta Southern No. 1 well, has been pumped out and has resumed drilling at 3,160 feet.

Royalite Oil Co.'s No. 5 rotary test is reported down 2,554 feet and drilling. Royalite's No. 6 rotary test is down 2,413 feet and drilling.

In the foothills 25 miles west of Calgary, in the Jumping Pound district, Imperial Oil, Ltd., Bow River No. 1, Section 12-25-5w5, has the camp completed, derrick under construction and machinery en route. This test will probably spud in by the end of January, and is planned to drill through the winter if weather is at all favorable. In the northern foothills, 150 miles west of Edmonton, Imperial Oil, Ltd., Coalspur No. 2, Section 3-49-21w5, is reported down 3,990 feet and drilling, after completing a difficult fishing job at 3,985 feet.

In the southern foothills, west of Nanton, the Imperial Oil, Ltd.'s Rice Creek test is shut down until the spring; while in the Border Field, east of Coutts, Alta., the Erickson Coulee test is rigged up, but will not spud in until spring.

Promising Test

In east-central Alberta, the Edmonton-Wainwright Oil Co. is going ahead with a test for oil close to the British Petroleums, Ltd.'s No. 3-B producer. This well is the most promising yet finished by British Petroleums, Ltd., having a reputed capacity of 100 bbls. a day or better, the crude being also a somewhat lighter product than the heavy asphaltic crude encountered in the earlier wells. The Edmonton-Wainwright Oil Co. is working under an agreement recently concluded with British Petroleums, Ltd., for the further development of the latter company's holdings. The Edmonton-Wainwright Co. has a derrick up and machinery is being transferred from the British Petroleums' No. 3-B to drill the new test.

The Edmonton-Wainwright Oil Co. has also signed a contract with the Irma Oil Development Co. to complete the latter company's unfinished test on Section 28-45-9w4, at Irma. Dave Credille, the pioneer rotary driller in this field, who put down the first two British Petroleums tests and also the Maple Leaf Oil & Gas Co.'s No. 1, will superintend the operations at the Irma well, which he expects to have completed in about 10 weeks. A boiler and engine are now being loaded at Saskatoon, Sask., for delivery to Irma, where they will be used in the Irma Oil & Development Co. test. The Irma well was primarily undertaken to secure a natural gas supply for Irma,

(Continued on Page 107)

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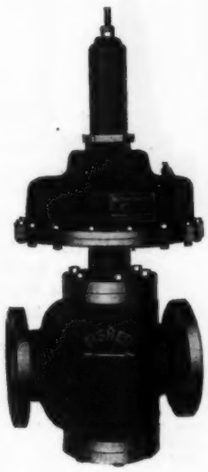

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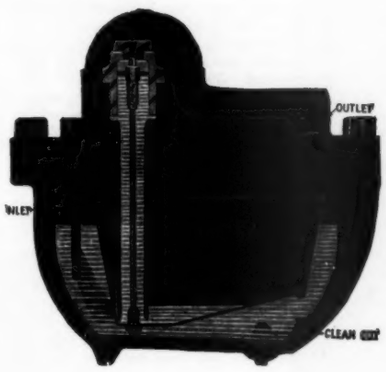

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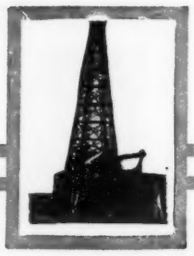

Southwest Texas Fields

By Special Correspondent

Bordo Oil Co.'s No. 1 De la Garza, northeast of discovery well in Carolina-Texas gas field of Webb County has showing of oil. Humble Oil & Refining Co.'s No. 4 Walsh in Piedras Pintas Pool, stops flowing. Cole Petroleum Co. gets 50,000,000-foot gasser in Webb County.

SAN ANTONIO, Tex., Jan. 18.—Bordo Oil Co.'s No. 1 de la Garza, 3 miles northeast of the discovery well of the Carolina-Texas gas field in Webb County, has a showing of oil at 2,125 feet that is the best any well drilled in that gas area has had thus far. Due to expectations entertained that an oil field exists there somewhere the find is creating considerable interest. The well is in the northwest corner of Block 46 of Survey 48 of the de la Garza land, 150 feet from each line. Casing was set Monday, January 11. Sand was topped at 2,125 feet and above the sand was 2 feet of sandy shale and lignite which has not been noticed in logs of other wells and above the sandy shale and lignite was 93 feet of gumbo. The well was drilled in last Friday and bailed. The fluid followed the swab out of the hole when the swab was put on and hit the crown block. It was mostly salt water and gas with a little oil. A little oil had shown in the core when it was taken before casing was set. Swabbing and bailing soon demonstrated that the water could be bailed to the bottom. Allowed to stand over night it was found there was 30 feet of solid oil on top of 1,100 feet of water Saturday morning and the hole had filled up with 200 to 250 feet of sand. The drill went 4 feet into the oil sand. It looks very doubtful whether it can be made a well though the tools are being put back into the hole and it will be cleaned out and drilled a little deeper, and given a further test.

One other well in the Carolina-Texas district in Webb County at one time showed a little oil in the gas. Others carry a fairly heavy saturation of gasoline. The Bordo test is the best indication yet that there is an oil field in the territory. The oil from appearance is much like the Mirando oil which is 10 miles to the south. The showing is sufficient to stimulate considerable additional drilling even if the test should fail to make a well as at this time seems probable.

Piedras Pintas Dome

Humble Oil & Refining Co.'s No. 4 Walsh which discovered the Piedras Pintas Dome Pool in Duval County on December 20 and was making 1,500 bbls. daily through choker, stopped flowing at 4 o'clock Friday morning, January 15. The company believes it is stopped up with paraffin and tools will be sent back into the hole. The well when opened wide made at the rate of 10,480 bbls. a day for a period of two hours. It is cased with 4½-inch casing which would choke up with sand more readily than a larger size. It is claimed the flow was as large as at first and that it stopped instantly which some oil men consider points to its having bridged over. Moody-Seagraves and William F. Morgan are moving in tools to drill an offset to the Humble well across the railroad track to the west. They will be spudded in within a few days. Two months or more will be required to finish a well in the territory since the production is at 3,623 feet and the drilling not described as easy. Oil men have faith in the field in spite of the action of the Humble's discovery well, which will prevent leases from soaring for a time at least and will steady the trading unless the well at once comes back. If the choking off is due to a collapsed casing or some such trouble as that it will require considerable time to remedy the situation. If the screen is stopped with paraffin the screen will probably have to be pulled.

Mirando District

Cole Petroleum Co. has completed its No. 13 on Block 15 of Section 12 of the Benavides Ranch in the Las Cabecer de Los Angeles Grant in Webb County good for around 50,000,000 feet of dry gas. This is Cole Petroleum Co.'s second completion of gas wells contracted to the Houston Pipe Line Co. which will start work early this year on a pipe line from the field to a connection of its line in Live Oak County to Houston. Six wells in all will be drilled. No. 13 is a little south of No. 11 in the same section which was the first well completed for the Houston Pipe Line Co. Completion of this well also extends the gas area a little more to the south. The well is just west of the county line between Webb and Duval and is in Webb County. No. 11, the first big gasser, is practically on the line between the two counties.

Other than the completion of the Cole gasser the interesting feature of the week in the Mirando district is the Bordo Oil Co.'s well. The Bordo Oil Co. was organized by Laredo people and the company owns a half interest in the well and C. E. Wolcott and associates who have been operating in the Mirando district for some time own the other half. Wolcott brought in the Wolcott Pool in the Mirando oil field. The well was started November 20.

The first well in the district that showed a little oil with the gas was brought in by Morgan last year. Since then there have been one or two others but they have not carried enough oil to make more than a slight showing in the gas. The Bordo well may also be a disappointment but each well with a slight showing of oil helps to convince the "never-dies" that an oil pool will be found around Carolina-Texas gas field.

Operations on Bruni Tract

Rydal Oil Corp. and Crown Central Oil Corp., operating jointly on the Bruni tract in the Mirando Field, have completed a big water well outside of the prospective oil territory which guarantees sufficient water for the drilling campaign they are starting on the Bruni tract south of the Aviators Field which is now in the limelight because of the new wells and good wells and because of the slant the field is taking. They have set casing at 1,702 feet in their No. 3 Bruni in the northeast corner of the northwest quarter of Block 15 of the Bruni land. It is an offset to the Keene well that came in recently 300 feet to the east and which gave the field a new start toward the south. No. 4, immediately south of No. 3, is drilling and nearly ready to set casing and No. 5, some 300 feet south of No. 5, is rigging up. Three rigs will be kept running by Rydal-Crown Central. Keene and others have let the contract for their No. 2 which is 300 feet south of No. 1 and offsetting Rydal-Crown Central's No. 4. Dr. A. L. Edington has contracted for a test on Block 75 of the Edington subdivision of the Puig Brothers ranch, practically on north offset to the Keene well which is still making around 150 bbls. a day flowing through 2-inch tubing. George M. Ball is drilling on tests immediately north of the Keene and Rydal-Crown Central tests.

Magnolia Petroleum Co. has set casing in its No. 8 on Survey 256 of the Martinez tract in the Henne, Winch & Fariss Pool in Jim Hogg County. Casing was set at 2,107 feet.

Jim Hogg County

Simms Oil Co. has changed its location in Jim Hogg County from Survey 232 to Survey 233 and it is in the northwest corner 150 feet each way from the two lines. It is a mile or more south of the Pippin well brought in recently as a discovery well on Survey 291. Magnolia's No. 3 Merchant State Bank, a 400-foot offset to the east from its No. 1, along the north line of Survey 415, was a failure at the regular depth of 1,268 feet and it is being drilled deeper. No. 1 is about a half-mile south of the Pippin well in the center of Survey 291 and it was a small producer good for about 15 to 20 bbls. No. 2 drilled 300 feet west got a little oil but went into salt water and was a failure both at that depth and deeper. Conway, O'Byrne, Minnehan and Bailey are now offsetting No. 2 Magnolia on the north, having just spudded in. Magnolia is also rigging up on the test in the southwest corner of Block 10 of Survey 291 which is a half-mile northeast of the Pippin well.

Two new tests are being started in the Carolina-Texas gas district. Both will be drilled by O'Hern & Putnam, one in the southeast corner of Block 6 of Survey 335 will be for the Morgan Oil Corp. and one in Block 61 of Survey 261 will be for the Moody-Seagraves and Wm. F. Morgan. The last is about 2 miles northwest of the Carolina-Texas discovery well and the other about half way between. Morgan, O'Hern & Putnam have resumed work in the test on Block 9, Survey 678 in the same district and at 2,251 feet are in sandy gumbo.

Henne & Winch are rigging up on the southwest quarter of Survey 43 of the C. W. Billings ranch which is 5 miles northeast of the Carolina-Texas discovery well and the farthest of any test from the center of the field at this time. Henne, Winch & Fariss discovered the Jim Hogg County Pool and later the south extension to it. Braswell and others on the White subdivision of the Vela land out of Survey 580 in Jim Hogg County after the holiday shutdown is drilling and at around 1,600 feet (corrected depth) has taken a core.

Medina County

The Texas Co. for $22,000 cash has bought the acreage of the Rydal Oil Corp. in the Ina Field in Medina County amounting to 420 acres. Considerable of it is in the P. E. Durst Survey No. 15 of 1,000 acres in the center of which the Ina Field is located. Magnolia recently bought 320 acres for $50,000, the purchase including five producing wells with equipment and the acreage being more centrally located. This gives the Magnolia and The Texas Co. the bulk of the acreage in that survey and the remainder is owned by the Golden West Oil Co. of California, the Gibson Oil Corp. and Eastham & Tarver. Golden West Oil Co. has completed its No. 1 Regina Schmidt, which is a 300-foot north offset to Eastham & Tarver's No. 1 Viola Wilson and is drilling in No. 2 which is 300 feet east of No. 1 and is 300 feet north of the Gibson Oil Corp.'s No. 1 Viola Wilson. Golden West is

(Continued on Page 106)

New Mexico Field Operations

By Special Correspondent

ARTESIA, N. Mex., Jan. 16.—Close watch is being kept by operators and scouts on Braden & Trueshell's No. 1 located in the NW of the SE of Section 5-17-28. Three million feet of gas was struck in this test at a depth of 1,347 feet. Drilled to 1,362 feet, an oil sand was picked up, the hole standing 300 feet in fluid. The gas has been cased off and drilling resumed, the hole now being at 1,390 feet. This well is 6 miles north of The Texas Co.'s producers in the north extension to the field.

In Section 17-18-28, the V. K. F. Oil Co. has a good producer in its No. 6. The regular pay in this well was passed up, it being the intention of the company to drill a deep test in an effort to pick up the new pay found in the Ohio Oil Co.'s No. 6 on the Toomie Allen lease. At a depth of 2,515 feet the hole filled so rapidly with fluid, coming from the 2,145-foot level, that it was impossible to drill deeper. The well pumped 55 bb's. the first nine hours and will probably make 175 bbls. when cleaned out. Location for No. 7 has been made, this to be drilled between Nos. 1 and 2, which have been the best producers on the lease.

In Section 3-18-28, the Levers-Carper's No. 1 continues to flow at the rate of 200 bbls. daily, although due to the strong gas pressure the crew have been unable to get the tools into the hole to clean the well.

In Section 5-18-28, The Texas Co. is running 6⅝-inch casing in an effort to swab this well while drilling. Twenty-seven feet of oil producing sand was picked up at 2,559 feet and the hole is standing 1,800 feet in fluid. It is understood the well will be carried to 3,000 feet before being shot.

Other Tests Scheduled

Several more tests are scheduled to be drilled west of the river. A second test will be made in the Hope section, 18 miles west of here, this being the Smith, McClure & Bixler's No. 1 on the White ranch in Section 9-17-23 and contract has been given for a 3,000-foot test. In Section 15-19-25, the McFrederick Eppenaur's No. 1 is now drilling below 2,100 feet.

The Arkansas Gas & Fuel Co.'s No. 1 on Manning Dome is drilling at 2,875 feet. This test is located on what is considered one of the best structures in this section and should it not prove a producer it is understood a second test will be made.

Machinery and material for the casing-head gasoline plant to be erected here by the Phillips Petroleum Co., is now being moved to the field. This plant, which will be a 14-unit will be located in Section 17-18-28. Gas, sufficient to manufacture 12,000 gallons daily has been contracted for.

A tour of the field was made yesterday by officials of the Santa Fe Railroad, who came personally to investigate the prospects of this section. F. A. Lehman, general manager of the western division; A. L. Meyers, assistant manager and C. E. Smyers, superintendent of the Pecos division, were in the party. M. O. Danciger of the Danciger Oil & Refining Co., and several other operators here took the officials on a tour through the field. Mr. Lehman stated that the possibilities here were even greater than they had

(Continued on Page 108)

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BETTER BE SAFE THAN SORRY

California Field Operations

By L. P. Stockman

Marland Oil Co. opens new producing area at Seal Beach when its No. 1 Bixby, at 4,834 feet, flowed 500 bbls. of 25 gravity crude. Recent 1,500-bbl. completion in Huntington Beach extension significant because of effect upon future developments. Standard Oil Co. completed four wells at Inglewood.

LOS ANGELES, Calif., Jan. 16.—The completion of a 1,500-bbl. well in California today generally merits considerable comment and, although a flowing well of this size was finished in the Long Beach extension this week as told in last week's issue of The Oil and Gas Journal, the actual completion was really of secondary importance. The real significance of the completion referred to lies in its effect on future work and the conclusions already drawn on the possibility of the area in question.

A. J. Delaney, who has shown his unbounded faith in the area by starting 10 wells some time ago, was the lucky individual to finish the second largest flowing well completed in the extension since it was opened up. Art's success is not due to any lucky break, but is rather due to his persistency and faith in his own judgment. Mr. Delaney's latest successful completion was his No. 5 Cerritos at Long Beach, which, although it started off in an humble way, finally built up to 1,500 bbls. and tanked during the past 24 hours 1,456 bbls. of 22.8 gravity oil cutting 3 per cent. In keeping with the general rule established throughout the field, production of the well will undoubtedly start to decline immediately after the maximum is registered and we can, therefore, expect a substantial drop within the next two weeks. The hole was carried down to 4,364 feet and finished with a 4¾-inch oil string, 239 feet of which was shop perforated.

Delaney still has five drillers and three new rigs standing, work upon which will probably get under way within the next week or 10 days. In endeavoring to get a line on the actual conditions prevailing in this extension and determine the potentiality of the district, the writer has encountered a considerable diversity of opinion and will, until something more definite is ascertained, be obliged to withhold final estimates for some time longer. Geologists differ as to the potentiality of the extension, some believing that the sands will pinch out at this point, while others think there is a good possibility of developing a still deeper horizon and, in view of the limited amount of information available, one guess is as good as another.

NEW SEAL BEACH FIELD

LOS ANGELES, Calif., Jan. 18.—The Marland Oil Co. opened up new Seal Beach district with its No. 1 Bixby, finished at 4,834 feet after experiencing considerable trouble with water. The location is in Section 2-5s-12w, San Bernardino base and Meridian. The initial production was 500 bbls. of 25 gravity crude, which cut 4 per cent. The oil is flowing into tanks through a ½-inch bean and tubed to 4,000 feet.

In the December 10 issue of The Oil and Gas Journal I predicted that a new field would be opened up in California before the end of June. Many disagreed with this opinion, but the above completion verifies my belief.

Big wells like Delaney's No. 5 just finished and Foster's No. 75, brought in several weeks ago doing 2,500 bbls., tend to stimulate work and partially confirm the theory that the extension will prove larger than expected. It must be remembered, however, that these two wells are in virgin territory and subsequent completions will result in a substantial decline due to a drop in gas pressure. As a whole, development work in the extension will probably not prove very profitable unless a new sand is developed, as many of the wells now drilling will only be good for a small recovery. Operators drilling in the center of the new area, of course, are sitting pretty and many already have received back their initial expenditure. A detailed check of work now in progress indicates that the new peak at Long Beach will be reached within the next 30 days or roughly around the first of April.

Smaller Completion

The Repetto Hills Oil Co.'s No. 3 was considerably smaller than Delaney's new producer, the initial output in this case being rated at 340 bbls. of clean 23.9 gravity oil. The hole was carried down to 4,319 feet and came in barefooted from this depth. The completion of this new well leaves the company with two drillers, No. 2 at 4,200 feet and No. 4 at 3,860 feet, the former being temporarily delayed with a fishing job. The McKeon Drilling Co. secured a successful water shut off in No. 1 Cerritos at 4,322 feet and the hole has been carried down and finished at 4,405 feet. The production test has not yet been made, but the outlook is good for a nice well and immediately upon the completion, Nos. 8, 9 and 10 will be spudded in, augmenting the company's present four drillers. The California Petroleum, by starting work on two new holes during the week, is now running 10 strings of tools in the extension and will probably spud in a new hole, No. 1 Hilton, some time during the coming week. The Associated, on the other hand, is temporarily holding off and waiting field developments before proceeding further on the Jonte and Whiteside leases, upon each of which a rig has already been erected.

Several wells drilling picked up the pay during the early part of the week and, since little time was lost in running casing, early tests are anticipated. L. T. Edwards picked up the pay in No. 1 Callahan at 4,257 feet, while the Julian Petroleum encountered the sand in two new wells, No. 1 Zellers and No. 1 Pastel, and pipe has just been run in. The Julian's wells in the pay at present should be followed into production a short time later by two more, as No. 1 Amsel and No. 2 Bailes have just passed the 4,000-foot level. The Ozark Oil Co. stands a good chance of bringing in three new wells simultaneously and following them a short time later with another, No. 1 Kirkland, now at 4,230 feet. The company's holes, which are now standing cemented on top of the oil sand, are No. 1 Leeds, No. 1 McKee and No. 1 Woodside, and their completion is expected during the coming week.

No. 3 Bixby of the United hit the top of the sand at 4,355 feet and this hole, together with No. 76 of the Retsof Drilling Co., which picked up the pay at 4,303 feet, are standing cemented. The former company spudded in two new holes during the week and its development chart now shows seven drillers. The Royal Oil Co. will begin swabbing its initial test in the extension tomorrow morning, and, although the outlook for a good well is not any too promsing, the company has hopes of at least securing commercial production. The Umpire Petroleum's No. 2 at 4,450 feet and No. 4 at 4,498 feet, are at present being prepared for production and tubing will be run in tomorrow. Five new rigs went up during the past seven days and indications point to the erection of four more during the next week. In the older section of the field, W. R. Ramsey finished his No. 6-B, located on property leased from the city of Long Beach, and indications point to a 500-bbl. well when the production test is made some time during the next week. The Shell is also getting ready to bring in a new well in the older area, the company's prospective producer being No. 6 Hutton, now standing cemented at 4,773 feet.

Inglewood

The Standard had a big week at Inglewood and the field department kept the pipe line boys on the jump handling the output from four new wells, all located on Los Angeles Investment Lease No. 1. Their combined daily output was 2,351 bbls., the largest individual well being No. 37, which came in doing 862 bbls. of 22.1 gravity oil from 2,340 feet. No. 36 is rated at 637 bbls. from 2,365 feet, the oil being clean and testing 22.7 degrees. No. 34 came in doing 416 bbls. from 2,191 feet, while No. 35 was good for 436 bbls. from 2,337 feet, the oil testing 19.1 degrees and showing a cut of 4 per cent. The oil string in each case was an 8¼-inch landed 2 feet off bottom. The company spudded in one new hole on this property, No. 41, and has just about finished rigging up Nos. 38, 39 and 40.

No. 6 on Los Angeles Investment Lease No. 2, going down for a deep test, is in a hard sand at 4,900 feet and, although the Standard has taken numerous core samples, the results so far have been negative. No. 1 on Vickers Lease No. 3, another hole being carried down for a deep test, is standing cemented at 4,180 feet.

The Mohawk Oil & Gas Co. is experiencing considerable trouble with water in its No. 1 Machado and, although the hole has been plugged back from 3,235 feet to 2,300 feet, the trouble has not yet been remedied. This well showed unusual promise several weeks ago and the company even entertained hopes of securing a natural flow. The California Petroleum also has a troublesome water problem on its hands in No. 6 Smith, carried down to 3,890 feet and plugged back to 3,778 feet, and some doubt exists as to whether the company's latest move will be successful. The Pacific Oil Co. is making preparations to bring in No. 13 Baldwin from 2,145 feet and this well will be followed later by completions on Nos. 14 and 15. Drilling has been resumed in the Golden Flood's outpost in the southern part of the field, after a delay of several weeks duration due to a fishing job, and the bit is now going ahead at 2,950 feet.

Rosecrans

The General Petroleum, after a long and valiant effort, has finally come into the big money at Rosecrans through the medium of its No. 1-A Vaughn, which, after making a small flow in the upper sand several months ago, was carried down to 6,109 feet in search of a more productive horizon. The company's efforts to develop a deep zone, however, were unsuccessful and the well was accordingly plugged back to the 4,700-foot level and given a test at this depth. It came in flowing 595 bbls. of 29.2 gravity oil, the only unfavorable feature in connection with the production secured being the water cut, averaging around 15 per cent. The well has been on production now for about five days and, since the production has not yet cleaned up, very little hope is entertained that it will do so, as it is evident that the plug has proven ineffective. The United Oil Co. brought in a somewhat larger well when its No. 4 Athens was given a test from 5,257 feet. Actual tank gauge showed a production during the first 24 hours of 992 bbls. of 33.8 gravity oil and, although the output, flowing through a ¾-inch bean, is cutting approximately 12 per cent, some hope is held out for an improvement. The Chanslor-Canfield Midway Oil Co. filed an official abandonment notice some time ago on its wildcat, No. 1 Bilhorn, and work of salvaging the pipe from this 6,000-foot hole was completed late last week.

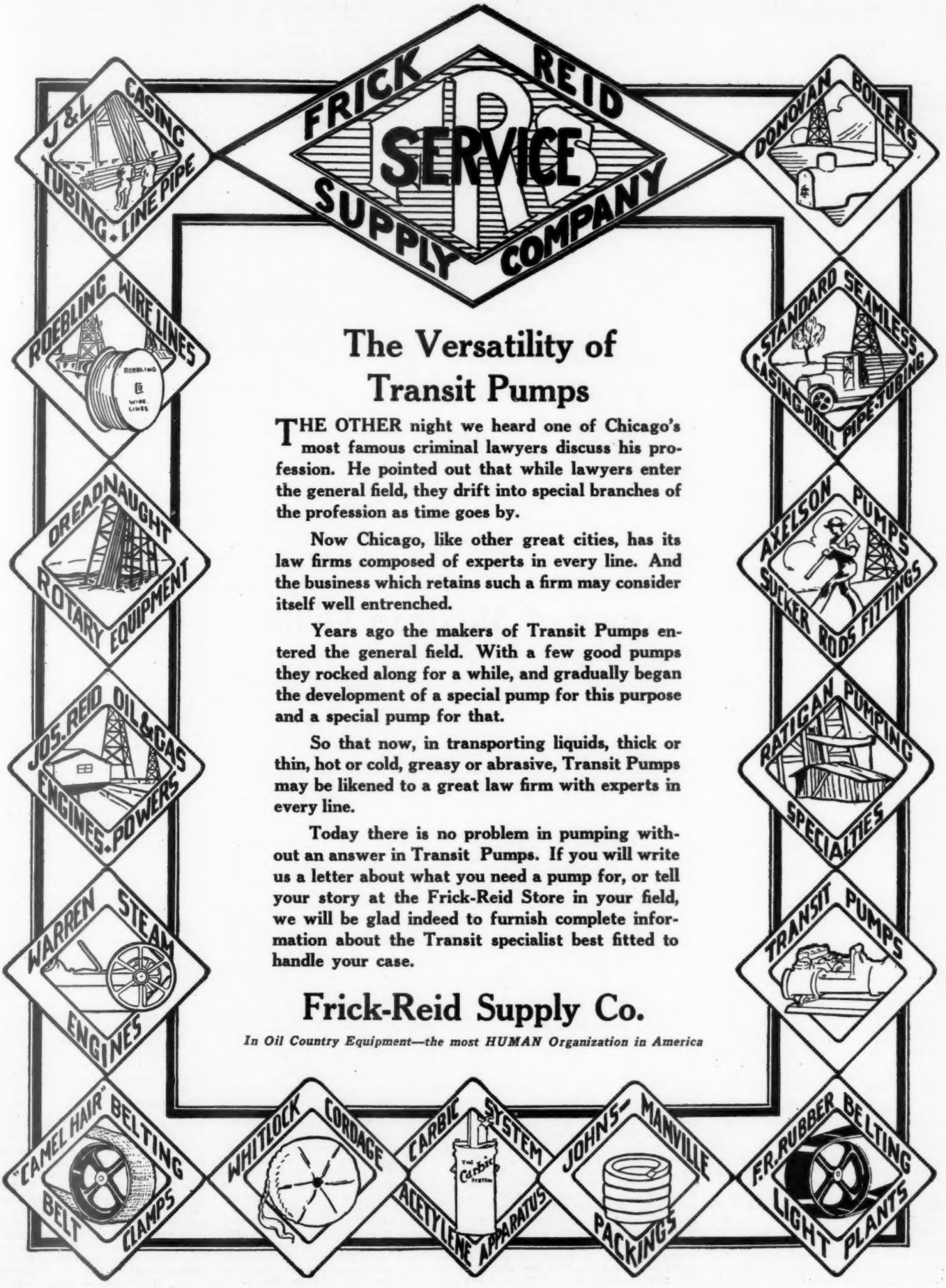
Torrance

One new completion was listed at Torrance during the past seven-day period when the General Petroleum put its No. 6 Carson on the beam at 3,400 feet. The initial pumping was 41 bbls. of 17.4 gravity oil cutting 3 per cent water and sand. The California Petroleum returned No. 1 Brown to production after cleaning out the hole to bottom, 3,455 feet, and although the exact production is not available, it looks good for about 50

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Following is a list of tankers, date departed, destination, kind of cargo and amount in barrels:

Agwistone, January 5, New York, crude	101,915
Fred W. Weller, January 6, New York, fuel	102,639
Francis E. Powell, January 6, Philadelphia, refined	77,541
Derbyline, January 6, Baltimore, fuel	73,916
Liebre, January 6, Philadelphia, fuel	65,181
H. C. Folger, January 7, Philadelphia, refined	75,073
Yorba Linda, January 9, Baltimore, crude	73,809
Bidwell, January 9, Philadelphia, crude	74,887
Coastwise	
K. R. Kingsbury, January 5, Richmond, crude	81,497
Stockton, January 6, Seattle, fuel	69,452
Wm. F. Herrin, January 6, Avon, crude	49,856
Los Angeles, January 6, Martinez, crude	72,097
S. C. T. Dodd, January 8, Richmond, refined	74,585
Richmond, January 9, Portland, fuel	62,970
K. R. Kingsbury, January 10, Richmond, crude	83,414
Exports	
Mina Brea (Br.), January 4, Vancouver, crude	40,029
James McGee, January 6, Balboa, fuel	112,497
San Gaspar (Br.), January 7, Buenos Aires, fuel	106,457
Levant Arrow, January 9, Cebu, refined	94,171
Santa Maria, January 10, Chile, fuel	85,716
From Ventura	
Betterton, January 8, Avon, crude	81,793
From San Francisco	
M. H. Whittier, January 4, Seattle, fuel	74,619
J. A. Moffett, January 5, Point Wells, fuel	63,508
Warwick, January 6, Seattle, refined	32,863
Lebec, January 7, Portland, fuel	69,021
El Segundo, January 9, Eureka, refined	32,565
W. S. Rheem, January 10, New York, fuel	93,648
M. H. Whittier, January 10, Portland, fuel	72,885
H. T. Harper, January 10, Willbridge, refined	31,451



The Versatility of Transit Pumps

THE OTHER night we heard one of Chicago's most famous criminal lawyers discuss his profession. He pointed out that while lawyers enter the general field, they drift into special branches of the profession as time goes by.

Now Chicago, like other great cities, has its law firms composed of experts in every line. And the business which retains such a firm may consider itself well entrenched.

Years ago the makers of Transit Pumps entered the general field. With a few good pumps they rocked along for a while, and gradually began the development of a special pump for this purpose and a special pump for that.

So that now, in transporting liquids, thick or thin, hot or cold, greasy or abrasive, Transit Pumps may be likened to a great law firm with experts in every line.

Today there is no problem in pumping without an answer in Transit Pumps. If you will write us a letter about what you need a pump for, or tell your story at the Frick-Reid Store in your field, we will be glad indeed to furnish complete information about the Transit specialist best fitted to handle your case.

Frick-Reid Supply Co.

In Oil Country Equipment—the most HUMAN Organization in America

bbls. a day. The Chanslor-Canfield Midway Oil Co. finished drilling No. 40 Del Amo at 3,670 feet and, since the oil string was being run in this morning, the well should appear on the completion list next week. The company has two other drillers on this lease and a rig standing for another. The Shell spudded in a new hole, No. 7 Redondo, and should get under way shortly in No. 8, now being rigged up.

Huntington Beach

King Gillette entered the Huntington Beach Field several months ago in search of production and took over the Gypsy's Nos. 2 and 4 and the Vista Del Mar's well No. 1. Gillette also undertook to do some prospecting and, with this idea in mind, erected a rig for No. 1 Buck in the extreme northeastern front. The writer's opinion that this location was a poor one has apparently been confirmed as Gillette's geologist has recommended suspension of work and the transferring of wildcat operations to the San Joaquin Valley, where a test will shortly be drilled in an effort to pick up a new structure in the Midway-Sunset area in Section 12-11-23, 2 miles east of production. No tests have yet been drilled near enough to the property to be developed to have any bearing on this contemplated wildcat. The Standard has made excellent footage in its No. 1 Newland at Huntington Beach and this interesting well will soon reach the depth at which production is expected. Should it come into production, the Standard's holdings in this field will be increased at least 50 acres.

No. 10 Monterey of the St. Helens Petroleum at Montebello came in flowing 280 bbls. of 22.8 gravity oil from 3,708 feet and the company anticipates another new well on this property within the next 30 days, as No. 11 is at present going ahead steadily at 3,215 feet. The two most interesting wells in this field at present, No. 1 Manz of the Superior at 2,801 feet and No. 16 Temple of the Standard at 1,864 feet, also made satisfactory footage. The Birch-Royer well at Coyote is still in a rather unsatisfactory condition and the outlook for production is rather discouraging. E. L. Blanton's No. 1 Gualdine, also at Coyote, was checked early this week at 2,100 feet, the formation being a hard sandy shale.

Midway-Sunset

Another week has passed and still none of the operators in the Maricopa flats is in a position to test out the Obispo sand discovered by the Obispo Oil Co. several months ago in Section 32-12-23. No. 1 Maricopa Star of the California Petroleum ran into water at 4,014 feet and the hole has been plugged back to 3,996 feet, from which depth a test will undoubtedly be made some time during the coming week. Another well of interest in this section, No. 1 Blanck of the Midland Oilfields, is testing for a water shut off at 4,090 feet, but the outcome has not yet been ascertained. In addition to these two holes, several others are nearing the desired depth and it should not be long until they drill into the pay, or the water zone, as the case may be. The El Dora's No. 8 is down 3,854 feet, while the Miocene's No. 4 is going ahead at 3,700 feet. The Julian Petroleum's projected Obispo sand well on the Midway Northern property is drilling ahead in a blue shale at 2,300 feet. No. 10-B of the General Petroleum is rotating ahead at 3,190 feet and, although the company has finished rigging up No. 11 Pacific Midway in Section 32-12-23, actual drilling has not yet gotten under way.

In the Midway section of the field the North American Oil Consolidated finished two new producers in Section 30-31-24 and started rigs for two more holes on the same property. The company's successful completions were Nos. 27 and 32, the former being good for 278 bbls. of 26.9 gravity oil, while the latter made 261 bbls. of 27.2 gravity oil. No. 27 was carried down to 4,535 feet and finished with a 6¼-inch oil string, while No. 32 was drilled to 3,983 feet and finished with a 8⅝-inch oil string. No. 58 of the Honolulu Consolidated in Section 8-32-24, was good for 188 bbls. of clean 26.9 gravity oil from 3,005 feet. The General Petroleum's No. 1 in Section 24-31-22 on the beam at 2,440 feet and pumped 15 bbls. during the first 24 hours and, although the output was rather disappointing, work was immediately started on No. 2 and the hole carried down 400 feet before the close of the week. The Pacific Oil Co. finished a 110-bbl. pumper when No. 50 in Section 19-31-24 was put on the beam at 4,170 feet, the oil testing 22.4 degrees and showing a cut of 2 per cent.

No. 1 Slayter of the United Oil Co. in Section 22-30-24 is rotating ahead at 5,190 feet and, although this is the deepest test drilling in the Elk Hills Field at the present time, it is not being followed very closely because of its rather unfavorable location on the structure. The Union started grading for No. 14 in Section 26-30-24 and, although the rig will probably be finished within the next two weeks, it is not believed that spud will be made until No. 13 on the same lease has been completed. The Gross Drilling Co. secured a satisfactory water shut off in its well No. 3 in Section 26-30-24 and it will be probably drilled into production within the next week or 10 days.

Ventura

There were no new wells finished in the Ventura Avenue Field during the past seven-day period, but the Associated should bring in No. 20 Lloyd within the next three weeks, as it is at present showing oil and gas at 5,116 feet and seems to have plenty of kick. No. 101 Lloyd may, perhaps, precede this well, as a string of 8¼-inch has already been landed and cemented at 5,090 feet. If the Associated succeeds in getting big production from this well it will prove up about 500 acres more of the company's Lloyd lease and, since a line has already been laid from the well, the company must entertain high hopes. An effort will be made to bring in the well and force it to deliver production direct to the company's tank farm and thus eliminate the necessity of pumping the oil from lease storage. No. 101 Lloyd, which is about 1½ miles east of the company's tank farm, is separated from the storage base by a ridge of hills which reaches an elevation of around 250 feet. The company's plan contemplates a flow line direct from the well over this ridge to the farm. The Shell is making preparations to inaugurate an intensive drilling campaign in this area and already has rigs going up for six new wells. The company at present has two potential producers in No. 8 Gosnell, now at 5,082 feet, and No. 10 Taylor at 5,200 feet, and they should both be on production within the next 30 days. Two other wells on the Gosnell lease are nearing the 4,000-foot level. The General Petroleum has just spudded in its No. 3-A Barnard and staked a new location for No. 10 Notten and, although material has not yet been delivered on ground, work will probably get under way shortly. No. 1 Hartman of the Bolsa Chica, an important north line well, is going ahead steadily at 2,720 feet, while No. 1 Willett of the Petroleum Securities, a south line well, has just passed the 1,000-foot level. No. 1 Sexton of the Milham Exploration Co. in the extreme eastern part of the field, is rotating ahead at 1,012 feet.

The Chanslor-Canfield Midway Oil Co.'s Ventura County wildcat, No. 1 Hobson, is still held up with pipe trouble at 3,220 feet, but the delay will probably only be of a temporary nature. Hoyt S. Gail has a rather discouraging test at Camarillo and, since over 5,100 feet of hole has failed to find a sand sufficient to warrant production, an abandonment is anticipated. E. J. Miley suspended work on No. 1 Casitas at 4,188 feet and, although a few minor tar showings were found, this Red Mountain test offered no other encouragement. The Ring Oil Syndicate is running a water witch in No. 1 Converse on South Mountain in an effort to locate the water trouble which has been holding up work for several months at 3,770 feet. The Standard has not yet started work on its first hole on the Argabrite property, although a diamond core test has been carried down to around 1,000 feet in an effort to locate the trend of the structure.

Southern California Wildcats

The Shell is making unusually slow progress in No. 1 Menchago up in Brea Canyon and, although drilling was started several weeks ago, the hole is only down 962 feet. The Pan American has filed an abandonment notice on No. 2 Pacific Southwest at El Segundo and will abandon this 4,000-foot hole in a gray sand due to the unfavorable outlook.

The Julian Petroleum has not yet started rig construction for its projected test at Hermosa, although material is already on ground. The Marland is making preparations to prospect near Hermosa Beach in section 26-25-14 and, since location has already been staked, drilling will probably get under way within the next 30 days. W. W. Stabler's No. 1 Castaic, at the foot of the ridge route near Saugus, showed a little gas at 974 feet, but other than this no favorable indications have been noted. No. 2 Conroy of the Milham Exploration Co., a recent spud at Newhall, is going through a coarse sand at 369 feet. That the Milham seems pretty well sold on the Playa Del Rey territory, is evidenced by the fact that another test is contemplated about 1,000 feet removed from the company's first test, which was abandoned in a barren gray sand at 4,800 feet. The Standard has not yet drilled out No. 1 Von Schriltz in the Santa Ana quadrangle, but is proceeding ahead in No. 1 Plavan at 3,800 feet. No. 1 Von Schriltz of the Shell at Talbert, several miles away, is going ahead in a hard sandy shale at 4,242 feet. The Marland started construction work this morning on a rig in Section 26-2-14, about a mile north of the Union's old No. 1 Wagner, and approximately one-half a mile from an old test, No. 1 Farrell of the Standard. Both of these holes were abandoned as dry. The Marland acquired this lease several weeks ago from W. J. Farrell. The Shell also started work on a new wildcat today. It is about 6 miles west and 1 mile north of the town of Moorpark in Ventura County and will be known as No. 1 Berylwood.

Northern California Wildcats

It does not look as though the Chanslor-Canfield Midway Oil Co.'s Delano wildcat in Section 20-25-27 will be the means of opening up a new field in this area and it would not be at all surprising if the company suspended work on this hole and drilled another before relinquishing its holdings. J. K. Porter has plugged back his Poso Creek test in Section 32-26-28 from 2,325 feet to 2,050 feet, preliminary to testing out a showing found at this depth. The Main's second Wasco wildcat showed considerable gas early this week from 4,250 feet and, although no oil colors were noted, the gas showing is considered encouraging. The Main's first test in this area did not show any oil, but made a considerable flow of dry gas for several days. The Associated has plugged back its wildcat near Kerman in Section 35-13-26 from 5,740 feet to 4,900 feet and a test will be made from this depth a little later. The Standard ran into a fishing job in its test northwest of Kettleman Hills in Section 12-25-9 and drilling will be held up pending recovery of several stands of drill pipe lost at 4,580 feet.

The Associated suspended work on its No. 1 Kettleman in Section 12-23-18 at 2,043 feet and, although both the General Petroleum and Marland were working steadily during the week, no progress was made due to the fact that both holes are held up with mechanical trouble. The Bolsa Chica in Section 30-23-19 is getting ready to make a production test

(Continued on Page 106)

News of Mexican Fields

By George Blardone

TAMPICO, Mex., Jan. 15.—The first week in January saw the largest number of wells finished that were perhaps ever completed in one week in Mexican fields. The number was 26, of which 6 can be classed as producers. The new potential production resulting from these completions can be placed at 90,300 bbls.

The first two wells in the list have already been reported. These were Huasteca Petroleum Co.'s Nos. 54 and 57 Tierra Blanca, in the south fields, rated good at 45,000 and 15,000 bbls. respectively. The other pay completions were in the northern fields and they follow: Mexican Petroleum Co.'s No. 66 La Dicha, in the Ebano Field, 18,000 bbls. at 1,580 feet, a shallow depth for that sector and National Lines' No. 26 Chapacao, in the Ebano right-of-way, finished at 1,879 feet reckoned good for 12,000 bbls.

In the Caracol, H. G. Venable has a 200-bbl. well in his No. 31 finished at 2,474 feet, although the oil comes from a little higher up. In the old Panuco, La Corona Petroleum Co., has a 100-bbl. stripper in its No. 108 Piedras finished at 2,000 feet.

Northern Field Failures

The failures in the northern fields can be summarized as follows: La Corona Petroleum Co.'s No. 175, Lot 4 Cacalilao drilled into salt water at 2,198 feet; International Petroleum Co. finished two dry holes in Lot 5 Cacalilao, Nos. 246 and 256 at 2,250 and 2,300 feet respectively; and over in the Tanchicuin, its No. 23 drilled into salt water at 2,252 feet. Mexican Petroleum Co.'s No. 20, Lot 1 Cacalilao, finished in salt water at 2,230 feet. Mexican Gulf Oil Co.'s Nos. 9 Zuniga and 15 Lopez, in the old Panuco Field, finished as dusters at 2,200 and 2,075 feet. National Oil Co.'s Nos. 19 and 39, in the Chijoles sector of the Panuco, are dry at 2,515 and 2,500 feet respectively. Transcontinental Petroleum's operations in Lot 4 Cacalilao resulted in 4 dry holes, Nos. 206, 234, 236 and 239 finishing from 2,275 to 2,480 feet; in its Paciencia, Transcontinental's No. 47 is a dry hole at 2,320 feet; and over in the Tanchicuin on the western edge of the Panuco Field, its No. 7 Lot 14, drilled into salt water at 1,895 feet.

In the Marland Field, Cia. Pet. Franco Espanola has finished No. 40 Limon at 2,400 feet for a duster. In Ebano, Mexican Petroleum Co. also scored a dry hole in its No. 51 Chapacao at 2,480 feet; its No. 11 La Pez drilled into salt water at 2,205 feet.

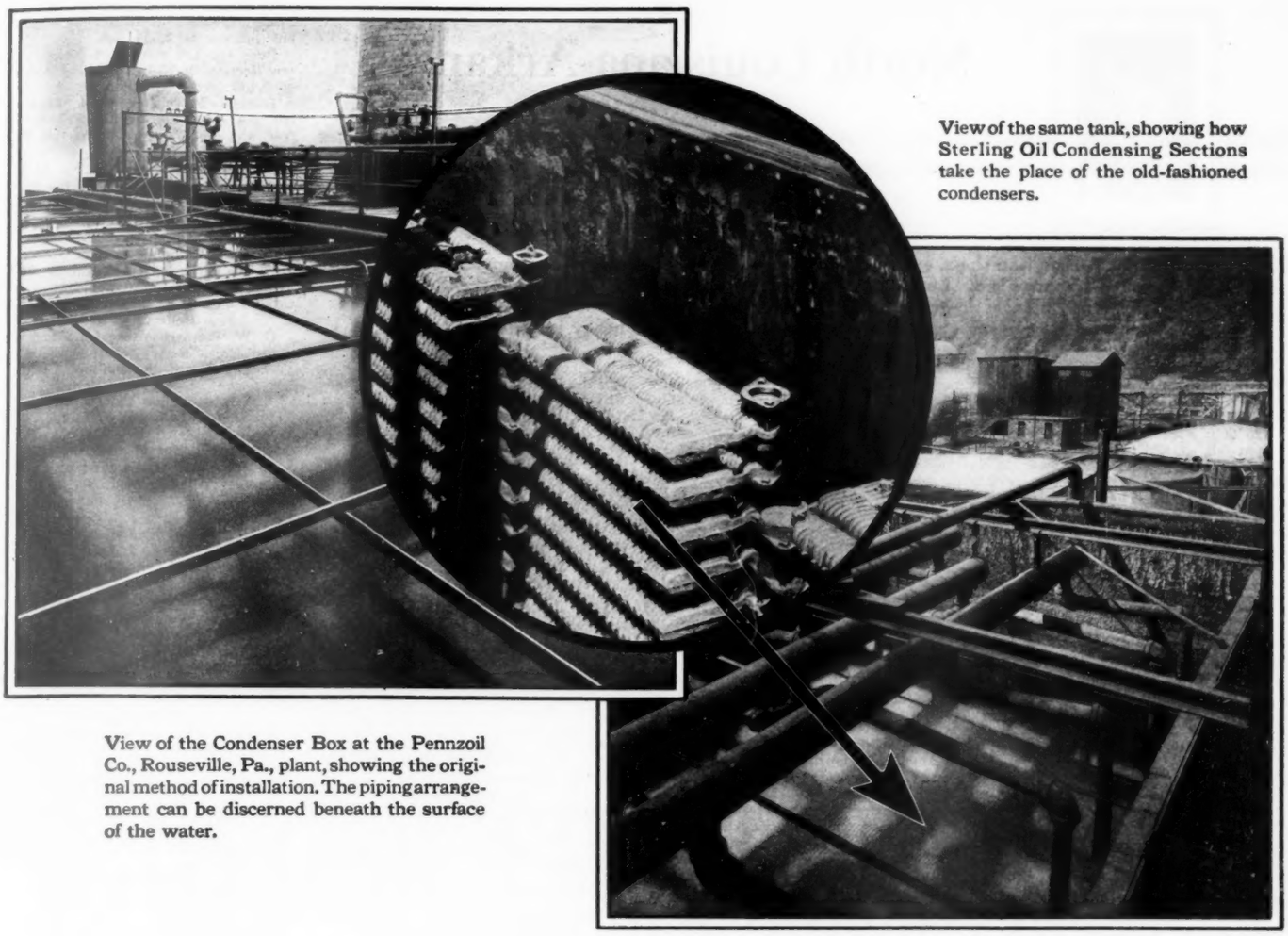
In the South Fields, Huasteca Petroleum Co.'s No. 30-A Cerro Azul is a salt water well at a subsea level of 1,525 feet. International Petroleum Co.'s No. 32 Toteco finished for 10 bbls. at a subsea level of 1,275 feet.

At Panuco

In the Panuco Field drilling operations as the week ended follow: La Corona Petroleum Co.'s No. 110 Piedras cemented 8-inch in gray lime at 1,320 feet, and its No. 111 is rigging. Credito Petrolero's No. 3 Piedras cemented 8-inch in gray lime at 1,237 feet, and its No. 6 is in gray shale at 210 feet. East Coast Oil Co.'s No. 443 Ingenio is in gray lime at 1,770 feet; No. 451 is in brown lime at 1,785 feet; No. 453 is in shale and shells at 1,265 feet, this test making remarkable time as depth indicated was made in only four days; and in the Halcon its No. 223 is in gray lime at 1,760 feet. Mexican Sinclair Petroleum Corp.'s No. 13 Tananturo is fishing at 1,807 feet, brown lime; its No. 17, same, cemented 8-inch in gray lime at 1,220 feet; its No. 7, Lot 1 Camolote, is in gray lime at 1,605 feet; No. 10 there is rigging; its No. 9 Zurita is in blue shale at 1,080 feet; its No. 15 Gutierrez cemented 8-inch in gray lime at 1,406 feet; No. 18 Gutierrez is in blue shale at 720 feet and its No. 10 Gonzales is rigging.

Mexican Gulf Oil Co.'s No. 3 Flores is drilling in gray and brown lime at 1,950 feet; and its No. 5 is running 8-inch in gray lime at 1,200 feet. National Oil Co.'s No. 14 Chijoles is in gray lime with

(Continued on Page 105)



View of the same tank, showing how Sterling Oil Condensing Sections take the place of the old-fashioned condensers.

View of the Condenser Box at the Pennzoil Co., Rouseville, Pa., plant, showing the original method of installation. The piping arrangement can be discerned beneath the surface of the water.

How STERLING OIL CONDENSING SECTIONS *saved these corroded condenser boxes*

EVEN THOUGH the condenser boxes shown at the left above became so badly corroded at the water line that they could no longer be used with old-fashioned condensers and even though the plant passed through a disastrous fire which further weakened the boxes so that they were unsafe for the depth of water indicated in the photograph, it was not necessary to build new boxes.

The Pennzoil Company, refiners of Pennsylvania crude oil, found that by installing Sterling Oil Sections they had the same amount of service but were able to lower the water line to a point where the condenser boxes could be used with absolute safety. The photograph at the right above shows the position of the new water line, under which condition the boxes are entirely satisfactory. It shows, too, the corroded condition of the upper part of the box where the old water line came.

The Pennzoil Company not only saved the cost of new boxes, but through the installation of Sterling Oil Sections actually increased the efficiency of the old box.

Many advantages and uses of Sterling Oil Sections are described in our illustrated catalogue. We shall be glad to send you a copy on request.

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North Louisiana-Arkansas

By M. L. Vaughn

Winn Parish, Louisiana, experiencing somewhat of boom due to development around Urania Field. Leasing in that district active. Well flowing between 285 and 300 bbls. of 43 gravity oil in Marion County, Texas, results in several additional tests being started in that section. Smackover heavy increases.

SHREVEPORT, La., Jan. 18.—Smackover production a little more than held its own last week, showing an increase of 125 bbls. a day, while Louisiana production fell off 836 bbls. daily. A gain in Caddo light and DeSoto was more than offset by declines in other districts in Louisiana, while an unexpected increase in Smackover heavy was brought down by declines in other Arkansas districts. Total production from both fields average 227,655 bbls. distributed as follows:

North Louisiana	
Bellevue	2,270
Caddo, light	9,450
Caddo, heavy	2,340
Cotton Valley	8,395
DeSoto and Red River	3,885
Elm Grove	600
Haynesville	10,500
Homer	5,370
Urania	555
	43,365
Arkansas	
Smackover, heavy	154,275
Smackover, light	19,225
El Dorado	7,450
Nevada	1,590
Stephens	1,750
	184,290
Total both fields	227,655
Decrease	711

Winn Parish Active

Winnfield, La., is looming on the horizon as the center of drilling activity on a large scale as the development of the Urania district spreads and promises to encircle the town. The Tremont Lumber Co. has ordered an abstract on all land owned by it in Winn Parish, comprising some 12,000 acres, and it is reported it is leasing to one of the major oil companies for a cash consideration and a drilling contract calling for 16 wells.

It was reported last week that Tulsa interests were negotiating for several thousand acres of land around Tannehill, 5 miles north of Winnfield, the land owned by Dr. A. W. Radescich and the Hall-Legan Lumber Co. Several years ago a well was drilled in this vicinity by Woods & Dyer in which there was a gas blowout which junked the hole at 2,100 feet and the test was abandoned.

Tullos, grown in three months from a crossroads store to a typical oil field town of from 2,000 to 3,000 inhabitants, has applied for a town charter and the leading business men of the place claim that within a short time they will have waterworks, a light plant and paved streets. A committee of Winnfield citizens appeared before the highway commission at Baton Rouge last week to urge immediate completion of the Winnfield-Olla highway and were assured that all preliminary work had been completed and that the commission will advertise for bids for construction within the next few days.

Texas High Gravity Well

Marion County, Texas, is again in the limelight with a good producer of high grade oil, adding materially to the interest in this territory. The well was drilled by the Trimount Petroleum Co. on the Hart lease in the T. E. Tucker survey, and is flowing through a 2-inch tubing between 285 and 300 bbls. a day, good, clean oil testing 43 gravity at 2,376 feet.

The Trimount Petroleum Co. already had three producing wells in this district, which adjoins the old Caddo Field on the west, and there has been a steadily increasing activity manifested in the Marion County Field during the past few months. The Hart well extends producing territory two-thirds of a mile farther west and is an encouraging feature of development in this territory.

H. B. Herring and others have started drilling on the Sedberry tract in the northwest corner of the Martin G. Noll survey, and have contracted to drill on the D. Hartzo survey, for the Atlas Drilling Co.

Lawton & Odell are drilling on the east end line of the Z. Y. Watts tract in the T. E. Tucker survey.

The Argo Oil Co. of Denver, Colo., has made a location for a test on the northeast corner of the T. Walton survey and is building derrick for a test in the southeast corner of the D. Hartzo survey. This company is planning an extensive drilling campaign on its holdings which comprise over 1,000 acres scattered throughout this territory.

The Dixie Oil Co. has recently acquired a large block of acreage in this neighborhood and the Ohio Oil Co. and The Texas Co. have also purchased blocks for drilling purposes. Altogether Marion County is getting the biggest play it has had for many years.

Union County—Completions

Completions in the Union County area during the week numbered 9, with 2 failures and 7 producing wells adding 1,085 bbls. to the daily output of the field.

Belmont and others drilled to 1,900 feet in No. 1 Jones, Section 21-16-15, and the well was abandoned at this depth without testing.

Gulf Refining Co.'s No. 44 Werner, Section 6-16-16, is pumping 90 bbls. at 2,260 feet.

E. M. Jones lost the hole at 2,660 feet in No. 5 Murphy, Section 17-16-15, and the test was abandoned.

Murdock and others completed No. 7 Hays, Section 4-16-15, making a 130-bbl. pumper at 2,366 feet.

Natural Gas & Petroleum Co.'s No. B-5 Muhpry, Section 17-16-15, is pumping 80 bbls. at 2,692 feet.

Southern Crude Oil Purchasing Co. completed No. 7 Lyell, Section 3-16-15, making 400 bbls. at 2,360 feet.

The Texas Co. completed No. 10 Alphin, Section 3-16-15, pumping 35 bbls. at 2,569 feet, and No. 1 McClannahan, Section 12-16-16, flowing 350 bbls. at 2,564 feet.

Thurman and others tested dry at 2,694 feet in No. 1 Houston, Section 12-16-16, and the well was abandoned.

Ouachita Parish

Completions in Ouachita County during the week numbered 8, with 2 big gas wells, 2 failures and 4 oil wells having an aggregate initial production of 450 bbls.

Gulf Refining Co. completed No. 8 R. Bennett, Section 33-15-15, making 40,000,000 feet of dry gas at 2,686 feet.

Humble Oil & Refining Co.'s No. B-8 Arnold, Section 26-15-16, is pumping 20 bbls. at 2,030 feet.

Marine Oil Co. completed No. 11 Snyder, Section 34-15-15, pumping 140 bbls. at 2,362 feet.

Phillips Petroleum Co.'s No. 10-A Laney, Section 31-15-15, made a 150-bbl. pumper at 2,554 feet.

Pure Oil Co. completed No. 11 Brister, Section 28-15-15, pumping 140 bbls. at 2,453 feet.

Roxana Petroleum Corp. abandoned No. 4-A Berg, Section 28-15-15, at 1,228 feet, and No. 1 Reynolds, Section 27-15-15, at 2,612 feet.

Simms Oil Co. completed No. 11 F. A. Laney, Section 31-15-15, making 30,000,000 feet of dry gas at 2,697 feet.

Bienville Parish

Hawks and others have abandoned their test on the Calhoun lease in Section 15-18-7, the formation discouraging further effort at 1,520 feet. The test was located a mile west of Gibbsland.

Bellevue Field

G. W. Wetherbee tested dry and abandoned No. 3 Berley, Section 15-18-7, on the east edge of the shallow district, at 531 feet.

Caddo Parish

In the Hosston district, the Austin Oil Co. completed No. 22 Peak, Section 24-22-15, pumping 30 bbls. at 1,029 feet.

In the Caddo Lake district, the Gulf Refining Co. completed No. 223 Ferry Lake, Section 16-20-16, flowing 85 bbls. at 2,286 feet.

In the Pine Island district, T. Schroder completed No. 1 Lane and others, Section 15-21-15, pumping 6 bbls. at 1,695 feet, and The Texas Co. completed No. 46 Caddo Mineral Land Co., Section 23-21-15, pumping 20 bbls. at 1,680 feet.

Claiborne Parish

Standard Oil Co. completed No. 33 Lowenberg, Section 24-21-8, on the north end of the old Homer Field, making a 10-bbl. pumper at 1,338 feet.

DeSoto Parish

Fortuna Oil Co. abandoned its test on the Alexandria lease, Section 32-12-15, after drilling to 4,223 feet. The test is located 4 miles east of Logansport.

LaSalle Parish

In the Urania district, the Natural Gas & Petroleum Co. tested dry in No. 2 Urania, Section 24-10-1e, and the well was abandoned.

Union Parish

Natural Gas & Petroleum Co. completed No. 1 Scott, Section 8-20-4e, adjoining the Monroe gas field, making 21,000,000 feet of gas at 2,156 feet.

Webster Parish

In the Cotton Valley district, the Ohio Oil Co.'s No. 3 Sandlin, Section 27-21-10, made a 30-bbl. pumper at 2,538 feet.

Columbia County

Russell & Kent got salt water at 2,937 feet in No. 1 Emerson, Section 7-19-19, and the test was abandoned.

Hempstead County

Tarver and others abandoned No. 1 Swafford, Section 14-11-25, in hard rock at 2,980 feet.

Nevada County

In the Nevada district, Greason and others completed No. 2 Waters, Section 2-14-21, pumping 10 bbls. at 1,205 feet.

Union County—Drilling

A slight increase in drilling activity is noted in the Union County area, drilling wells at the close of the week numbering 83, rigs 6 and derricks 13. The Keisker well in Section 9-17-16, 5 miles northwest of El Dorado, is the center of interest and there is considerable activity in this locality near Lisbon.

In the Lisbon district, Howell & Knowles are drilling at 2,185 feet in No. 1 Springer, Section 36-17-16; E. M. Jones tested dry at 2,563 feet in No. 1 J. R. Dumas, Section 8-17-16, plugged back and set 6-inch at 2,080 feet; McGaha and others have derrick up for No. 1 Haney in Section 11-17-16; Miles, trustee, set 12½-inch at 150 feet in No. 1 Miller, Section 35-17-16; Owens and others are drilling at 2,127 feet in No. 1 Porter, Section 4-17-16, and have gone through 7 feet of promising sand; J. D. Reynolds is bailing liner at 2,160 feet in No. 1 Dumas, Section 15-17-16; the Rovenger Oil Corp. is drilling at 2,060 feet in No. 1 Dumas, and has derrick up for No. 2, Section 9-17-16, and Wingfield and others are drilling at 1,200 feet in No. 1 Dumas, Section 9-17-16.

In the El Dorado and Norphlet districts, C. H. Allison is down 100 feet in No. A-1 Fitzgerald, Section 17-18-15;

Rocky Mountain Area

By F. B. Taylor

CASPER, Wyo., Jan. 16.—The Wilson Dome well, located about 35 miles west of Casper on the Wilson Dome, Natrona County, Section 32-38-83, being drilled by the Marland Oil Co., failed to find production as expected in the Lakota sand and is now through the Sundance sand and drilling for the Embar.

This well found a showing of gas and oil in the Lakota sand, then the hole was plugged in the top of the sand and the casing underreamed to shut off a flow of water that was found in the Dakota sand about 60 feet above the Lakota. After considerable trouble in getting a shutoff, the plug was drilled out and the Lakota sand drilled through. The showing of oil and gas failed to increase with deeper drilling and after a screw the sand commenced to show water; the water increased as the sand was drilled and the hopes that were high of a new Lakota sand field at Wilson Dome have been discarded.

The Marland can only expect a black oil production from now on, for the Embar and Tensleep sands contain that grade of crude only. The Sundance sand found a showing of black oil at 1,770 feet that had a gravity of 16 degrees and was not considered large enough to warrant examination further.

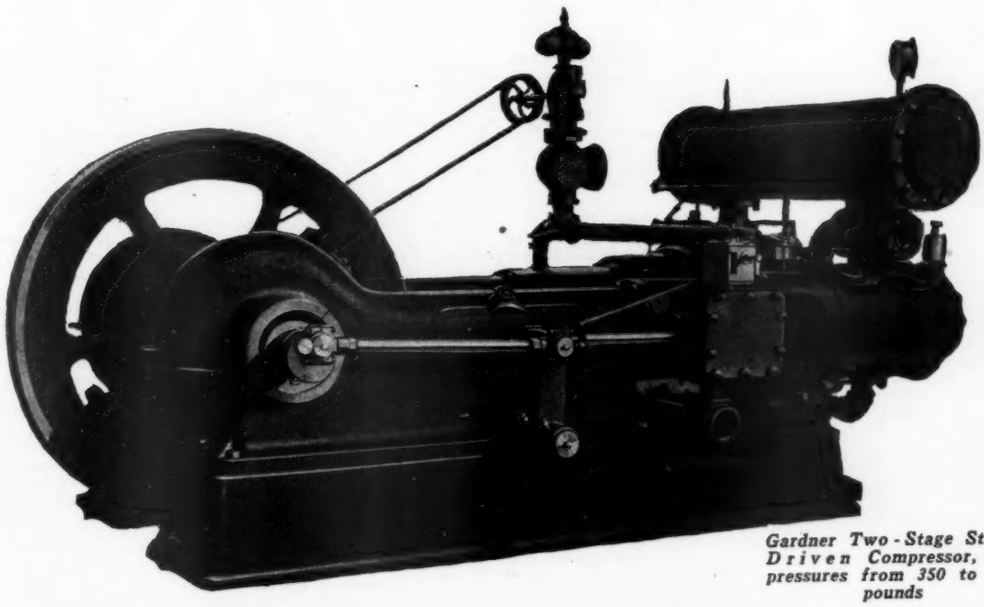
West of the Wilson Dome about 15 miles, the Marland has one black oil producer on the Notches Dome, shut in. The Midwest Refining Co. drilled a test on the North Casper Creek Dome last year to the Tensleep sand and found a black oil producer that was estimated good for 300 bbls. However, on drilling a little deeper, water was encountered and the water gradually drowned out the oil until the hole was abandoned and it is now flowing a large quantity of water only. The North Casper Creek structure lies about 10 miles east and south of the Wilson Dome.

Since the proving of a commercial pool in the Lakota sand at Salt Creek, all wildcats have carefully examined this sand for production, but so far it has not been found productive in Central Wyoming at any point other than Salt Creek Field.

Fort Collins Gas Line

The right of way for the proposed gas line from the Fort Collins Field in Colorado to Cheyenne, Wyo., is being surveyed for the last time and the rights over the lands is being taken. This line will carry gas from Fort Collins Field to Cheyenne, where it will be used with the present manufactured gas there to supply the customers of the gas company. The gas comes from the wells of the Union Oil Co. of California and is contracted to the Cheyenne Light, Heat &

(Continued on Page 120)



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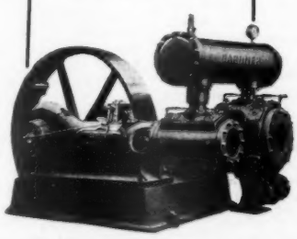

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Amerada Petroleum Corp. has the hole full of salt water at 2,367 feet in No. 5 Calloway, Section 4-16-15; Anderson and others are drilling at 2,575 feet in No. 2 Murphy, Section 15-16-15; Arkansas Drilling Co. is coring at 2,300 feet in No. 2 Turnage, Section 34-15-16, and Arkansas Fuel Oil Co. drilling No. 8 Ferguson, Section 6-16-15, at 2,455 feet.

Bradley & Cazart arranging to deepen No. 1 Miles, Section 21-17-15, from 2,555 feet; Broderick & Calvert set 6-inch at 2,625 feet in No. 4 Bradford, Section 8-16-15; Crawford & Sebastian bailing to test No. 10 James, Section 8-16-15, at 2,555 feet; J. E. Crosbie drilling No. A-1 Lawton, Section 10-16-15, at 2,625 feet, and Crown Central Petroleum Co. arranging to drill plug in 8-inch at 2,510 feet in No. 7 Murphy, Section 8-16-15.

Estes and others drilling No. 1 Murphy, Section 15-16-15, at 2,515 feet; Federal Petroleum Co. arranging to deepen No. 6 Ballard, Section 7-16-16, from 2,480 feet; Gulf Refining Co. arranging to pump No. 8 Graves, Section 3-16-15, standing with 480 feet of fluid in the hole, 20 per cent salt water, in 6 feet of sand, at 2,555 feet, and is drilling No. 45 Werner, Section 6-16-16, at 850 feet; Harrell, trustee, is coring with a show of oil at 2,310 feet in No. 1 Carroll, Section 7-16-16; Hickman and others set 8-inch at 2,420 feet in No. 12 Graves, Section 3-16-15; Hollifield and others set 6-inch at 2,560 feet in No. A-3 Giller, Section 10-16-15, and Humble Oil & Refining Co. set 6-inch at 2,563 feet in No. 5 Giller, Section 15-16-15, and has derrick up for No. B-2 Lawton, in Section 7-16-15.

Other Operations

E. M. Jones is drilling at 1,350 feet in No. 7 Murphy and rigging up to drill No. 8, Section 17-16-15, and drilling at 2,555 feet in No. 3 Lawton, Section 10-16-15; W. R. Keever set 8¼-inch at 2,467 feet in No. 4 Sanford, Section 17-16-15; Laurel Oil & Gas Co. set 12½-inch in second hole at 195 feet and drilling at 1,600 feet in No. 5 Tatum, Section 7-16-15; Lion Oil & Refining Co. cemented a short string of 3½-inch at 2,606 feet in No. 9 Graves, Section 3-16-15, bailing 5 feet of sand at 2,360 feet in No. 10, same section; drilling at 2,510 feet in No. B-3 Lawton, Section 10-16-15, has 1,200 feet of fluid in hole at 2,650 feet, after plugging back from 2,665 feet, in No. 2 LeCroy, Section 16-16-15; has 1,500 feet of fluid in 6 feet of sand at 2,413 feet in No. A-13 Murphy, Section 7-16-15, and arranging to pump; 1,500 feet of fluid in 6 feet of sand in No. C-10 Murphy, Section 7-16-15, and arranging to pump at 2,503 feet; rigging up to drill No. C-9 Murphy, Section 8-16-15; derrick up for No. D-5; drilling at 2,490 feet in No. D-6, and at 2,000 feet in No. G-6, Section 8-16-15.

Little Fay Oil Co. has set 6-inch at 2,615 feet in No. 5 Harrell, Section 17-16-15; Magnolia Petroleum Co. set 6-inch at 2,593 feet in No. 3 Hatfield, Section 7-16-15, and at 2,288 feet in No. 2 R. O. Scott, Section 12-16-17; Murdock and others drilling No. 7 Vestal, Section 17-16-15, at 1,520 feet, and testing 5 feet of sand at 2,516 feet in No. 8 Vestal, same section; Natural Gas & Petroleum Co. set 6-inch at 2,655 feet in No. A-3 Harrell, Section 17-16-15; has 600 feet of oil in 8 feet of sand and is arranging to pump No. 5 Ballard, Section 15-16-15, at 2,590 feet; drilling at 1,250 feet in No. 4 Flenniken, Section 8-16-15, and at 1,510 feet in No. A-5 Murphy, Section 17-16-15.

Owens and others have 9 feet of sand in No. 1 Parks, Section 32-16-16, bailed down to within 300 feet of bottom and have a small showing of gas, but no oil. Pure Oil Co. is drilling No. 8 Merriwether, Section 6-16-15, at 2,025 feet; Sam Richardson is arranging to deepen No. 3 Lawton, Section 10-16-15, completed April 20, 1925, flowing 8,000 bbls. at 2,464 feet; Russell and others tested salt water in 1 foot of sand at 2,915 feet in No. 1 Brown, Section 8-17-14; Shreveport Oil Corp. set 6-inch at 2,425 feet in No. B-5 Murphy, Section 9-16-15, and the Simms Oil Co. is drilling plug at 2,447 feet in No. A-1 Murphy, Section 16-16-15.

Southern Crude Oil Producing Co. tested salt water at 2,660 feet and 2,670 feet and is coring at 2,720 feet in No. 3 Lawton, Section 7-16-15, and drilling at 2,350 feet in No. 4, same section; Sun Oil Co. is down 50 feet in No. 7 Hatfield, Section 6-16-15, and has set a string of 3½-inch casing at 2,646 feet in No. 1 McClannahan, Section 1-16-16. The Texas Co. had 2,000 feet of salt water in the hole at 2,504 feet in No. 9 Alphin, Section 3-16-15, cased off the salt water and is drilling in oil sand at 2,510 feet, and has 400 feet of oil in No. 11 Alphin, Section 3-16-15, and is arranging to pump.

Thurman and others set 10-inch at 382 feet in No. 1 Flenniken, Section 17-16-15, and are coring at 2,545 feet in No. 4 Wilson, Section 6-16-15, and have 1,200 feet of fluid in the hole, 20 per cent salt water in 10 feet of sand, in No. 9 Wilson, and are arranging to pump at 2,568 feet; Unity Petroleum Co. is drilling No. 8 Bilyew, Section 8-16-15, at 2,328 feet.

Ouachita County

The search for oil in Ouachita County resulted in the completion of several big wells in the deep sand last week, the wells making from 30,000,000 to 40,000,000 feet and having a rock pressure of from 975 to 1,000 pounds. Drilling activity shows a slight increase, drilling wells at the end of the week numbering 32, with 9 derricks and 1 rig.

Houston Oil Co. is drilling No. 7 Hinton, Section 5-16-15, at 2,597 feet; Howell and others have 1,800 feet of oil in 10 feet of sand and is arranging to pump No. 5 Williams, Section 3-16-15, at 2,385 feet; Humble Oil & Refining Co. set 10-inch at 42 feet and drilling at 500 feet in No. B-9 Arnold, Section 26-15-16, and derrick up for B-10 in same section; drilling at 1,925 feet in No. 9 Flannigan, Section 6-16-15; setting 10-inch at 500 feet in No. 5 Laney, Section 31-15-15, and drilling at 2,215 feet in No. 6, same section; set 6-inch at 2,600 feet in No. 4 H. Laney, Section 31-15-15, and bailing to test 5 feet of sand at 2,353 feet in No. 6 Jones-Umsted, Section 4-16-15. Imperial Oil & Gas Producing Co. set 6-inch at 2,550 feet in No. 9 McClannahan, Section 6-16-15.

Kouri and others are drilling plug at 2,630 feet in No. 2 Snowhill Church, Section 28-15-15; Magnolia Petroleum Co. drilling at 2,410 feet in No. 2 Bettie Clawson, Section 5-15-17; set 6-inch at 2,540 feet in No. 9 J. Goodwin, and 8-inch at 2,520 feet in No. 10, Section 5-16-15, and rigging up to drill No. 2 Shirey fee, Section 30-15-16. A. Meek has set 6-inch at 2,240 feet in No. 1 LaGrone, Section 36-15-17; Natural Gas & Petroleum Co. has derrick up for No. 5 A. Hill, Section 5-16-15, and the Owenwood Oil Corp. for No. 10 Snyder in Section 34-15-15.

Pure Oil Co. drilling at 2,770 feet in No. 1 Stout Lumber Co., Section 27-15-18; J. D. Reynolds rigging up to drill second hole in No. 1 Smith, Section 13-15-17; Simms Oil Co. milling through casing at 2,090 feet in No. 5 Hildebrandt, Section 28-15-15, and drilling at 2,170 feet in No. 8 N. B. Muhpry, Section 29-15-15. Standard Oil Co. arranging to swab No. 9 J. Griffin, Section 33-15-15, at 2,382 feet; Superior Oil Co. drilling plug at 2,560 feet in No. 3 Flannigan and drilling at 2,400 feet in No. 4, Section 6-16-15; Unity Petroleum Co. arranging to plug back from 2,500 feet in No. 4 Berry, Section 33-15-15, and Woodley Petroleum Co. set 6-inch at 2,350 feet in No. 1 Umsted, Section 4-16-15, and drilling at 800 feet in No. 4 Richardson, Section 29-15-15.

Vandiver and others are shut down for fuel in their test on the Yarbrough lease in Section 22-14-17, 7 miles northwest of Louann and 5 miles south of Camden.

In the Stephens Field, Gossett and others have derrick up for No. 1 Davis, Section 26-15-19, building derrick for No. 1 Gosden, Section 21-15-19, and drilling at 500 feet in No. 1 Thompson, Section 22-15-19.

Bossier Parish

Arkansas Fuel Oil Co. has shut down at 1,130 feet in No. 1 Murray, Section 14-23-14, 8 miles northwest of Plain Dealing.

Palmer Corp. has derrick up for No. 9 Caplis, Section 25-16-12; Simms Oil Co. is drilling at 1,125 feet in No. 1 C. D. Sandidge, Section 9-18-11, 2 miles north of Haughton.

Woodley & Collins are rigging up to drill No. 1 Wilburn, Section 18-19-13.

Bellevue Field

In the Bellevue Field, Louisiana Oil & Refining Corp. set 8-inch casing at 80 feet in No. D-28 Fee, Section 15-19-11.

Caddo Parish

In the Pine Island district, Dixie Oil Co. is drilling at 3,141 feet in No. B-2 Noel, Section 13-21-15; set 10-inch casing at 85 feet, drilling at 566 feet in No. 7 Fitzsimmons Drilling Co., Section 14-21-15; Double I Oil Co. set 6-inch at 1,475 feet in No. 5 Spell, Section 15-21-15; Fortuna Oil Co. is reaming to set 4-inch casing at 2,314 feet in No. 1 Spell, Section 29-21-15; Ohio Oil Co. is drilling at 3,708 feet in No. 1 J. B. Ardis, Section 1-21-15, and at 3,420 feet in No. 18 E. K. Smith, Section 12-21-15; The Texas Co. set 10-inch at 38 feet, drilling at 279 feet in No. B-11 Noel, Section 14-21-15, and set 10-inch at 40 feet, down 195 feet in No. 1 D. H. and G. A. Raines, Section 27-21-15.

In the Hosston district, Austin Oil Co. set 10-inch at 42 feet, 6-inch at 1,039 feet in No. 27 Hoss, Section 23-22-15; Dixie Oil Co. is arranging to set casing at 3,728 feet in No. 1 Jolly, Section 27-22-15, drilling at 400 feet in No. 2 Donovan, Section 21-22-15; H. J. Bussa is drilling at 550 feet in No. 6 Allen, Section 23-22-15.

In the Oil City district, Bratcher and others set 4-inch casing at 2,230 feet in No. 1 Files, Section 10-20-16; Fortuna Oil Co. is bailing at 2,222 feet in No. 15 Doan-Thigpen, Section 5-20-15; Gulf Refining Co. set 6-inch at 2,050 feet in No. 224 Ferry Lake, Section 20-20-16; set 10-inch at 103, down 863 feet in No. 225 Ferry Lake, Section 21-20-16, and has derrick up for No. 226 Ferry Lake, Section 16-20-16.

Two miles northwest of Rodessa, J. W. Stanffer is drilling at 1,900 feet in No. 1 Starcke, Section 17-23-16.

In the old Caddo Field, Standard Oil Co. is standing 40 feet in oil at 2,380 feet in No. 175 Stiles, Section 27-21-16.

Caldwell Parish

Potts & Crickett, trustee, are drilling at 1,728 feet in No. 1 Core, Section 30-12-3e, half way between Columbia and Urania Field.

Claiborne Parish

Gilliland Oil Co. is arranging to deepen No. 3 R. P. Bond, Section 15-23-8, which was formerly completed making 350 bbls. in 25 feet of sand at 2,780 feet.

Seven miles north and a little east of Arcadia, J. P. Evans and others are drilling in broken chalk rock at 2,260 feet in No. 1 Mrs. B. L. Boatner, Section 10-19-5.

Triangle Drilling Co. has made location for No. 1 Meadows, Section 7-22-5.

Catahoula Parish

The Texas Co. set 12-inch casing at 589 feet in No. 1 Harris Hyman, Section 24-8n-7e.

DeSoto Parish

In the Naborton Field, Dixie Oil Co. is changing to cable tools at 3,293 feet in No. 1 Jenkins, Section 9-12-11; Gulf Refining Co. is drilling at 782 feet in No. A-33 Jenkins, Section 4-12-11, and The Texas Co. is drilling out cement at 2,402 feet in No. A-9 Wemple, Section 9-12-11.

La Salle Parish

Alexandria Urania Oil Co. set 8-inch casing at 1,579 feet in No. 2 Urania, Section 19-10-2e; Atlantic Oil Producing Co. has made location for No. 1 Tullos, Section 26-10-1e, and Ayers and others set 6-inch casing at 1,557 feet, drilling at 1,568 feet in No. 2 Urania, Section 13-10-1e, 2 miles west of Urania.

A. B. Jones set 10-inch at 80 feet, drilling at 400 feet in No. 1 Russell, Section 24-10-1e, 2 miles east of Urania, formerly reported as Davis & Meredith's No. 1 Russell.

Eight miles west of Jena, the Dixie Oil Co. is drilling at 400 feet in No. 2 Urania, Section 24-10-1e.

O. W. Clark set 6-inch at 1,502 feet in No. 1 Tullos, Section 23-10-1e, formerly Gould & Monroe's No. 1 Tullos.

Gould & Monroe set 10-inch at 80 feet, drilling at 850 feet in No. 1 Miles, Section 25-10-1e, and Galloway and others

(Continued on Page 105)

Fields of the Central West

By Whit

FINDLAY, Ohio, Jan. 18.—But little was accomplished by the drill in the division of the Central West Field, north of the Ohio River, during the week in review, there being but eight completions reported within the entire area. This is the smallest number of new wells brought in for a week's time for many years in this area. Heavy winds banked the deep snow so it was almost impossible to move material or drill at the wells. Zero weather followed the snowstorm of three days. Some work started up at the close of the week but little headway could be made.

Reminiscent of the days when Lima, Ohio, struggled for recognition in the midst of a rapidly developing oil industry, the formation of a $500,000 oil corporation comes as a realization of the dreams of a handful of men, some the pioneer oil operators of the Lima Field of northwestern Ohio, establishing one of the largest independent producing companies in the famous Trenton Rock Field, to be known as the Oko Oil & Gas Co. this will include holdings in Ohio, Kansas and Oklahoma fields.

The consolidation was first conceived by Mack P. Colt of Lima, Ohio, who has been named president, and has been one of the chief promoters of oil operations in the Lima, Indiana and other fields for more than 20 years. M. J. Lynch, who has been associated with Mr. Colt for some years in developments in the fields, is vice president; H. E. Myers is secretary-treasurer, with C. M. Tolan and W. L. Parmenter as associate members. These men, three of them listed among the pioneer oil operators of Lima and Allen County, are given credit for the first big boom the city of Lima ever experienced, the extraordinary tests in the Lima area attracting operators from other sections who are now numbered among the foremost petroleum magnates in Lima and the Trenton Rock Fields.

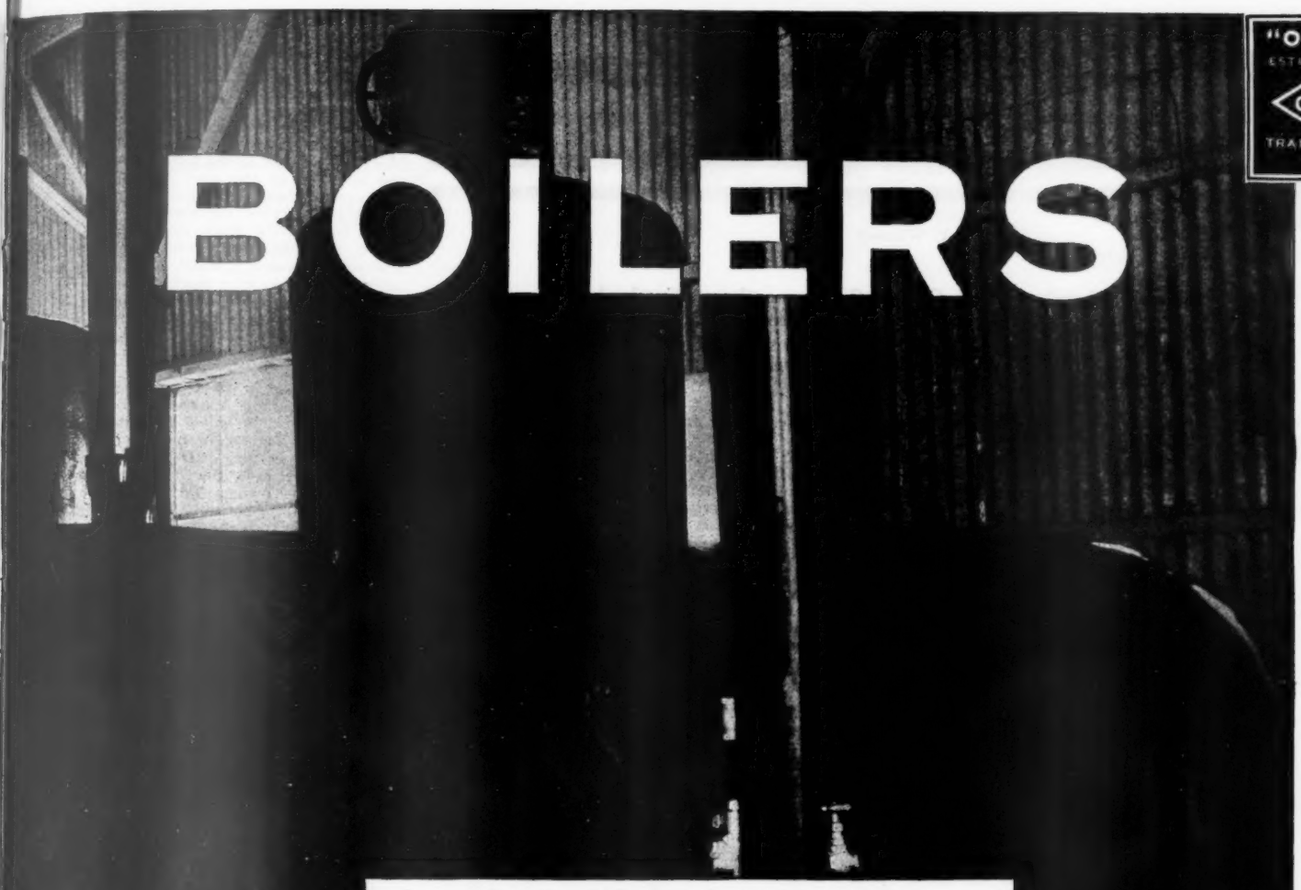
Continuing their operations despite the general criticism, Colt and Lynch have proved that the field surrounding Lima is as productive as they at first supposed, and drilling in their estimation still has unusual possibilities. Fields in Allen, Wood and Mercer Counties were developed by them.

The consolidation of the firms will result in an extensive drilling campaign early in the spring in the Lima Field, as well as on their properties in Kansas and Oklahoma. Development will be carried on in the Lima Field on a larger scale, it was stated, making for one of the biggest years in the Trenton Rock area for many years.

Following the announcement of the consolidation of the company additional stock was oversubscribed by $100,000. New properties will be purchased from the sale. Headquarters of the organization will be established at Lima. Besides the chief officials of the concern, W. L. Parmenter, M. P. Colt, M. J. Lynch, H. E. Myers and C. M. Tolan, the board of directors is composed of W. L. Reid, J. H. Goeke, E. R. Curtin and H. L. McLeod of Delphos. W. L. Parmenter has been one of the large operators of the Lima Field. Mr. Colt at one time owned more than 1,100 wells in the Lima Field.

For the first week in its history no

(Continued on Page 100)



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EQUIPMENT

BRANCH STORES IN ALL OIL FIELDS

Kentucky—Tennessee

By Vern T. Whitney

Wood, Haislet and others' well on Crocus Creek, northeast Cumberland County, Kentucky, blows in with 500 bbls. Adair County to have six tests. A. H. Heisey Co.'s well in Overton County, Tennessee, reported estimated at 50 bbls. from deeper pay than Tinsley's Bottom, where they may drill deeper.

BOWLING GREEN, Ky., Jan. 18.—A well estimated good for 500 bbls. in the extreme northeastern part of Cumberland County right up against the Adair County, Kentucky, line; a 50-bbl. showing in a wildcat venture, near Livingston, in Overton County, Tennessee, and the purchase of 15,000 acres of leases in Casey County, Kentucky, by Col. Less Combest and R. D. Farlan, features the past week in the Kentucky and Tennessee fields.

A summary of the week's work shows 18 completions, with a flush of 593 bbls. from 15 producers, 2 dry holes and 1 gas well. Comapred with the previous week this is a decrease of 7 completions, 2 more producers, 9 less dry holes, the same number of gas wells and an increase of 465 bbls. in initial yield. The wells were distributed by counties as follows:

	Comp.	Wls.	Pro.	Dry	Gas
Lawrence-Johnson	3	3	20	0	0
Johnson-Magoffin	2	2	12	0	0
Wayne	2	1	2	1	0
Warren	2	2	5	0	0
Barren	2	1	6	1	0
Owensboro dist.	2	2	16	0	0
Allen	1	1	2	0	0
Floyd	1	0	0	0	1
Cumberland	1	1	500	0	0
Estill	1	1	5	0	0
Overton, Tenn.	1	1	25	0	0
Total	18	15	593	2	1
Last week	25	13	128	11	1
Difference	7	2	466	9	0

The most sensational news was the bringing in of No. 1 G. W. Brockman, on Crocus Creek, in the extreme northeastern part of Cumberland Counay. This well, 600 feet north of the old Garrett gusher in Adair County, drilled in 1868, blew itself in at 265 feet with an estimated production of 500 bbls. On tapping the sand the well flowed 60 feet in the air and it was with much difficulty that it was capped in 36 hours later. A 250-bbl. tank is being erected on the lease, and one 500-bbl. tank is on its way. The Brockman tract is on top of the Hopewell structure about a half a mile southwest of Hopewell Church, and a short distance southwest of the gas well on the J. H. Morgan farm.

The owners of the Brockman well, Noble L. Wood, Frank L. Haislet, C. D. McLennon and D. C. Calhoun, are moving another rig to the farm and will drill it up as soon as possible.

Sam K. Baird of Shreveport, La., is moving a rig to drill a test on the J. H. Morgan tract about 2,500 feet northeast of the Brockman gusher.

Several large blocks of acreage have been leased by Shreveport parties in southern Adair County, and contracts have been signed for the drilling of six tests to be started within 90 days, and it looks as though the Hopewell district will be a busy spot during 1925.

According to reports received, the test of the A. H. Heisey Oil & Gas Co. on the Robbins farm, 4 miles east of Livingston, in Overton County, Tennessee, is showing for 50 bbls. naturally, in the Trenton sand at 1,885 feet. If this report is correct it will mean that this section of Tennessee will be the scene of much activity within the next few months. The sand that is producing at Tinsley's Bottom was practically barren of oil, according to Mr. Coghlin of Livingston. Bruce Estes, who is a student of the University of Lexington, Ky., and who helped survey the Stoll Oil Refining Co.'s pipe line in this section of Tennessee, reports the well was flowing in the deep pay.

The production at Tinsley's Bottom, in Clay and Jackson Counties, is found at depths ranging from 350 to 550 feet, in a sand about 100 feet below the Pencil Cave, and the finding of this deeper pay in the Robbins test will no doubt result in the drilling of a number of the wells in the vicinity of Tinsley's Bottom, that were dry in the regular way, to this deeper horizon.

The test being made on Flat Creek, south of Hilham and north of Windle, Overton County, Tennessee, which is drilling at 1,200 feet, is being drilled to the 1,885-foot sand as only a slight showing of oil was had in the upper pay.

Casey County, in central Kentucky, is in for a testing as Col. Less Combest of Liberty, Ky., and R. D. Farlan of Philadelphia, Pa., have purchased 15,000 acres of leases in different sections of the country that has been well organized. Several of the old line companies are also picking up acreage in Casey County. Colonel Combest was one of the first operators to invade Cumberland County, and was instrumental in the building of a pipe line to that sector. He has drilled 60 wells in the Kentucky fields and has also done considerable wildcatting in Texas and Louisiana, and his entry into Casey County will mean much toward its future development.

Western Kentucky

Operations in western Kentucky the past week were confined to small wells, the best being a 10-bbl. pumper completed by the White Plain Oil & Gas Co. on the Allen Brown tract in the Owensboro district. This well, No. 1 on the farm, extended production in the new Midkiff Pool 400 feet to the west of the discovery well on the Midkiff. It was finished in the Barlow sand.

In the Pellville area, the Leeper Oil Co.'s No. 7 E. Barlow, offsetting the Knob Oil Co.'s No. 5 Bert Thompson, is a 6-bbl. pumper from the shallow Jett sand.

Owensboro Drilling

Daviess Oil Co. is shooting its No. 3 Howard in the Jett sand; Pennsylvania-Indiana Oil Syndicate's No. 1 Laura Mercer, shut down at 200 feet; No. 1 C. A. Kelley, drilling at 300 feet; Bolling & Loman's No. 1 George Midkiff has been delayed in starting on account of the water in the creek being frozen; White Plains Oil & Gas Co.'s No. 1 John Ward, cleaning out; Foster Oil Co.'s No. 1 R. B Powers is waiting on a shot in the Jett sand; Joe Young and others' No. 1 Rhodes has been shut down at 250 feet on account of frozen water lines; Petroleum Exploration's No. 1 Henry Greer, spudding at 80 feet; White Plains Oil & Gas Co.'s No. 1 O. Ralph 70 acres, 400 feet south of No. 1 Brown, being rigged up; Kentucky Oil Co.'s No. 2 John Burdette, Bert Thompson's No. 2 Gabbart and White & Nicklin's No. 8 O. T. Burdette were all shut down with frozen water lines.

Barren County

Barren County had its dullest week in a year and a half. Only two wells were finished, one a dry hole and the other a small pumper.

In the Gorby Pool, Lewis J. Emery, Jr., & Sons brought in No. 20 Depp & Greer for a 6-bbl. pumper at 380 feet, 180 feet below the black shale.

The Houchins Leasehold Co.'s No. 4 Traube was dry and abandoned at 500 feet, 189 feet below the black shale. This property was drilled three years ago and showed nothing but light pumpers, and the outcome of No. 4 will no doubt result in the abandonment of the lease.

Wells Drilling

In the Emery-Moore Pool, Ziegler Brothers' No. 11 Drinon, drilling at 250 feet; Scott & Hice's No. 3 Pheba Bradford is drilling at 275 feet; Houchins Leasehold Co.'s No. 20 Pitcock, spudding; Kopel Oil Co.'s No. 2 Everett, drilling at 295 feet.

The Consolidated Gas Co.'s No. 10 Duff, in the Hall Baker Pool, is spudding at 35 feet.

At Coral Hill, the Esslinger Oil Co.'s No. 1 Glass was drilling in the second pay.

L. J. Emery, Jr., & Sons' No. 21 Depp & Greer was drilling below the black shale; Hiland Oil & Gas Co.'s No. 12 Cassidy is on top of the deep pay sand and will be finished the first of the week.

Warren and Allen Counties

Operators in Warren and Allen Counties have been so discouraged with oil prices during the past couple of years that they are not in the humor of starting any out of the way tests, and a continued dullness is looked for during the winter. There are very few operators left in the field, most of them either following the Florida boom or looking for acreage in districts where the price of crude is at a mark where they can make money on their investments. Production in these counties has dropped close to 50 per cent of what it was in 1923, and no new district has been opened.

There were only three wells finished last week in these counties and their flush production was only 7 bbls. In Warren, Hodge & Smith's No. 2 E. Morehead was cleaned out and drilled a few feet deeper and showed for 3 bbls. when placed on the pump. Ed Thessan recently brought in his initial trial on the Moulder tract, in the eastern end of Warren, at 527 feet, 81 feet below the shale where it started off making 2 bbls.

In Allen County, W. Pruitt Hall's No. 14 Bettie Erwin is reported at 2 bbls. from the Corniferous sand at 278 feet.

Other Western Counties

Outside of Cumberland, Adair, Green, Barren and Casey Counties, and possibly the Owensboro district, little work will be carried on during the winter. Warren, Allen, Simpson, Logan and Hopkins Counties will show a steady decline in new work, although plans have been made for several deep tests in Warren and Hopkins Counties. The only

(Continued on Page 100)

San Juan Basin Operations

By Special Correspondent

FARMINGTON, N. Mex., Jan. 18.—Due to the inadequate transportation facilities of the San Juan Basin there is an impression generally that the output of oil here is around 1,000 bbls. daily. The fact is that the 23 producing wells are capable of putting 11,909 bbls. daily through a pipe line.

The Midwest Co. is shipping 500 bbls. of crude by railroad and the Continental is running that much to its refinery, when the latter is in operation.

With the promise of a pipe line by the Munoz-Continental companies by April 1, and the completion of the Sidney L. Weil railroad into the basin this year, the real merit of this section of the State as an oil field will be brought prominently before the oil fraternity.

The presence of oil in the valley has been known for the past 25 years, but no effort was made to get production until 1906, when a company formed with local capital drilled a test with little success. It remained for the Midwest Refining Co. to discover the now famous Hogback structure in the Navajo reservation where the first commercial well was discovered in October, 1922. Up to this time the Midwest has drilled 12 wells on that structure, 7 of which are commercial wells with a total production of 5,683 bbls. Though the Hogback discovery attracted considerable attention at the time it remained for the Rattlesnake structure discovered by S. C. Munoz to focus real attention of oil men in this territory. Associated with the Munoz interests, in the development of the Rattlesnake Dome is the Continental Oil Co. whose latest well, No. 17, proved to be better than 2,500 bbls. at less than 800 feet in depth, making it the biggest well in production ever discovered at this depth on this continent as well as being of the highest gravity perhaps in the world.

San Juan Basin

The San Juan Basin comprises about 18,000 square miles and is estimated that there are about 5,000,000 acres where the Dakota sands may be reached at depths ranging from 700 to 2,000 feet.

Geologically and stratigraphically speaking, the San Juan Basin is a deep semi-circular down warp or synclinal basin of cretaceous and underlying strata in which the rocks dip from all directions to a common center in the deepest part of the basin which lies at a point near the San Juan River close to the Colorado line.

In the central part of the basin the cretaceous rocks are covered with a thin mantle of eocene tertiary deposits which lie horizontal and hide the cretaceous rocks from view. These deposits were laid down after the close of the Rocky Mountain revolution and were, therefore, not subject to folding.

The so-called hogbacks or ridges, which surround the west, north and east rim of the basin are due to the steeply dipping, trucated edges of resistant sandstone largely of the Mesa Verde group, which overlie the Manco shale, in this area, having a thickness of over 1,300 feet; the Manco shales forming the outer rim or lip of the basin. These shales in many places lie horizontal and in some instances show a reversal of dip away from the basin, thus forming structures in the shape of domes, anticlines and terraces, such as the Hogback, Rattlesnake, Tocito, Table Mesa, Ute and Haystack domes, and the Sunetha, Chromo, Dulce and Durango anticlines, and many structural conditions yet unmapped.

Since the cretaceous oil zone is at or near the base of the Manco shale which in this area is 1,100 feet thick, it is only along the outer edge or dip of the basin that the oil bearing sands can be reached at a depth of 2,000 feet or less.

Correlates With Wall Creek

While the so-called Tocito sand which comes to the surface on such structures as have been drilled in this field so far has been unproductive, it yet may be

(Continued on Page 104)

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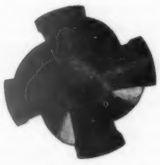
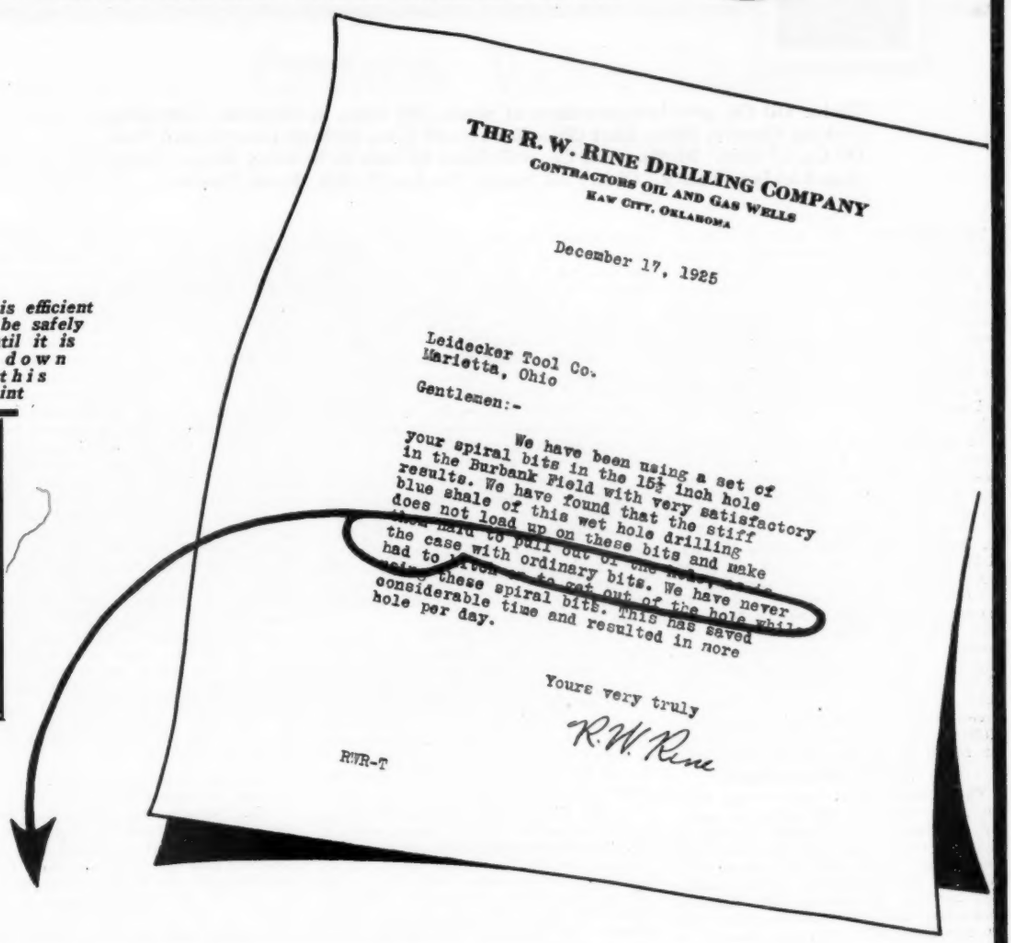


End View —
Two Cutting Edges
Four Cutting Points



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December 17, 1925

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Pennsylvania-West Virginia

By D. S. Wakenight

Carter Oil Co. gets best producer of week, 106 bbls., in Hanover Township, Licking County, Ohio; East Ohio Gas Co., 80 bbls., Holmes County, and Pure Oil Co. 57 Bbls. Midland Oil Co. well flows 45 bbls. in Bowling Green Township, Licking County. Ohio Fuel Supply Co. has 35 bbls., Knox County.

PITTSBURGH, Pa., Jan. 18.—Development work in the eastern fields is moving slowly. Operators were slow in getting back to work after the holidays. Then came a fall of snow from 6 to 10 inches deep, causing a still further shutdown. The depth of snow that covers the ground in Pittsburgh and vicinity is the greatest of the winter. For the reasons named the completions fell very low and only a few better than the average size.

In the deep sand territory in Lot 21, Hardy Township, Holmes County, the East Ohio Gas Co. has completed and shot in the Clinton sand No. 4 on the W. H. Uhl farm. The well produced 80 bbls. the ensuing 24 hours. In Lot 26, Newton Township, Licking County, F. M. Rugg & Co. completed in the Berea grit a second test on the Clinton McKinney farm and good for 4 bbls. a day. In the southwest quarter of Section 11, Newport Township, Washington County, the Peoples Banking & Trust Co. has completed in the first Cow Run sand No. 43 on the William Reader farm, a very light pumper. In Section 13, Bowling Green Township, Licking County, the Midland Oil Co. has the rig completed for No. 5 on the Murray Bowser farm.

Fair Wells in Holmes County

The Pure Oil Co.'s No. 4 on the Garnot Miller farm, in the southwest quarter of Section 17, Prairie Township, Holmes County, has been completed and shot in the Clinton sand and produced 57 bbls. the first 24 hours. In the southeast quarter of Section 23, Killbuck Township, the East Ohio Gas Co.'s test on the John W. Patterson farm is a duster in the Berea grit.

In Section 31, Union Township, Knox County, the Ohio Fuel Supply Co. has completed in the Clinton sand a test on the R. Neiderhouse farm. The location is 3 miles south of the Pure Oil Co.'s test on the W. D. Heaton farm and the well produced 35 bbls. the first 24 hours after shot.

In Section 14, Hanover Township, Licking County, the Carter Oil Co. got the best producer of the week when it completed and shot No. 12 on the Jacob Vendenbark and produced 106 bbls. after shot in the Clinton sand. The Carter Oil Co.'s operations on the Vendenbark farm have been very successful. All of the completions have had an initial production much above the average in the deep territory.

In the east half of the southeast quarter of Section 13, Bowling Green Township, Licking County, the Midland Oil Co. has completed and shot in the Clinton sand a test on the Violet Bogle farm. The well flowed 45 bbls. the first 24 hours after shot in the Clinton sand. In Section 24, Hopewell Township, the Carter Oil Co. is drilling a second test on the Lydia A. Mercer farm. In Section 2, same township, the Empire Gas & Fuel Co. is due in the Clinton sand at a test on the B. F. Coble farm. In Section 18, the Pure Oil Co. is due in the Clinton sand at a test on the J. D. Morehead farm.

In Lot 13, Hopewell Township, Muskingum County, the Mideast Oil Co. is drilling on the W. D. Porter farm. In Section 17, Madison Township, Perry County, the same company has the rig completed for a test on the J. McCullough farm. In Section 11, same township, the Ohio Fuel Supply Co. is drilling on the O. E. Campbell farm. In Newton Township, Licking County, the Rocky Fork Oil Co. has a light pumper at No. 24 on the James McKinney farm. No. 25 on the same farm is drilling.

Shallow Sand Completions

The Pure Oil Co. has completed No. 4 on the E. A. Baringer farm, in the southwest quarter of Section 29, York Township, Morgan County, good for 10 bbls. a day in the Berea grit. The same company has the rig completed for No. 6 on the George J. Fye farm. During the past month, the Berea grit pool in York Township, furnished more new production than all others combined. In Section 5, Washington Township, Monroe County, A. Bode has drilled down to the Big Injun sand his old gasser on the Edward Cline farm. It is a light pumper, good for 3 bbls. a day.

In the northwest quarter of Section 25, Sutton Township, Meigs County, Edward Calderwood has started to drill a test on the Alice Swearinger farm. In the same township. C. H. Rood & Co. are drilling a second test on the William J. Krider farm. In Alexander Township, Athens County, the Townsend Oil & Gas Co. is due in the sand at No. 4 on the Sarah E. Penrod farm.

In the Fisher Pool, Section 23, Alexander Township, Athens County, Cook & Co. have completed in the Berea grit a test on the E. P. Hanning farm. It is a duster, having only a very small show of oil. In Sections 13 and 31, Jefferson Township, Knox County, the Ohio Fuel Supply Co. is due in the Clinton sand at tests on the R. Babjohn, J. Rowland and R. Neiderhouse farms.

In Section 21, Jackson Township, Knox County, the Marget Oil Co.'s second test on the C. H. Ravidson farm is good for 5 bbls. a day. In Section 7, Jefferson Township, the Ohio Fuel Supply Co.'s No. 7 on the R. W. Mowery farm is a gasser. In Section 35, Olive Township, Noble County, the Herds Oil & Gas Co. has a light pumper in the 300-foot sand at No. 3 on the Herman Williams farm. In Section 6, Enoch Township, the Cain & Devoll Oil Co. has a duster in the Buell Run sand at No. 10 on the L. H. Devoll farm. In Section 30, same township, Frank Nau & Co. had similar luck at No. 10 on the Frank Nau farm.

Drilling Tests

In Section 10, Enoch Township, Noble County, Felix Gerst and others are drilling a test on the Simon Warner farm. In Alexander Township, Athens County, Cook & Co. are drilling on the H. C. Brooks farm. In Salem Township, Washington County, J. W. Gray & Co. have a rig completed on the W. L. Edmonson farm. In Independence Township, J. T. Campbell & Co. are drilling on the Ephraim Cummings farm. In Section 1, Richland Township, Belmont County, the Carnegie Oil & Gas Co. and others are drilling on the Y. & O. Coal Co.'s property.

West Virginia Completions

The West Virginia fields had a few fair producers. In the new Big Injun sand development on Grannys Run, Henry district, Clay County, the South Penn Oil Co. drilled No. 8 on the O. D. Stockly farm through the Big Injun sand and secured an average producer for that pool—about 25 bbls. a day. At the beginning of the new year there is no other section in the eastern fields that looks so promising for strictly new production. Holders of leases are developing the territory in a conservative way and the pool expanding but one location at a time. In no direction from development has a dry hole been encountered and nothing to condemn an extension in any direction. Some miles in advance dusters or gas wells have been encountered. The South Penn Oil Co., the Virginian Gasoline & Oil Co. and the Ohio Fuel Oil Co. are the largest holders of what looks to be producing territory. At the present there are 15 rigs up and wells drilling.

In Center district, Wetzel County, the Manufacturers Light & Heat Co. has drilled its test on the E. E. Moore farm through the Gordon sand and will be good for 3 or 4 bbls. a day. This well is some little distance in advance of production. In the same district the Hope Natural Gas Co.'s second test on the J. A. Riter farm is a 3-bbl. pumper in the same formation. In Greene district, the Carnegie Natural Gas Co. has a gasser in the Big Injun sand at a test on the H. Springer farm.

On Goose Creek, Grant district, Ritchie County, the South Penn Oil Co.'s test on the Barbara Jamison farm, drilled through the Big Injun sand last week, has been shot in that formation and is a producer good for 25 bbls. a day. In the same district, the Mellon Oil Co.'s No. 4 on the W. E. Conway farm is being tested for oil in the Big Injun sand.

In Mannington district, Marion County, the Carnegie Natural Gas Co. is testing for oil in the 30-foot sand at a test on the Job Moore farm. In Union district, Lincoln County, the Union Oil & Gas Co. has a gasser in the salt sand at a test on the G. F. Porter farm.

In Union district, Lincoln County, L. R. Sweetland's second test on the W. L. Adkins farm is a gasser in the Berea grit. In Carroll district, C. C. Wolfe has a gasser in the same formation at a test on the J. L. Caldwell farm. In Duval district, the Charleston-Dumbar Gas Co. completed a Berea grit gasser on the H. A. Williams farm. The Poca Fork Oil & Gas Co.'s No. 5 on the D. A. Forgarty farm, in Big Sandy district, Kanawha County, is a gasser in the Big Injun sand.

In Lee district, Calhoun County, Martin Crowley's test on the I. M. McCoy farm is a gasser in the salt sand. In Sherman district, Weaver & Lewis are fishing at 1,760 feet for a string of tools on the H. F. Wease & Co. farm.

In Paw-Paw district, Marion County, the Owens Bottle & Machine Co.'s test on the William Clayton farm is a gasser in the Big Injun sand. In McClelland district, Doddridge County, the Manufacturers Light & Heat Co. has shut down to test the casing at 1,700 feet on the L. S. Lyons farm. In the same district, the Nerr Bell Oil & Gas Co. has a 10-bbl. pumper in the Big Injun sand at a test on the Mary Shrader farm. In Union district, Tyler County, Morgan Brothers have a gasser in the Keener sand at a test on the Clara Thorn farm. In Liberty district, Marshall County, the Manufacturers Light & Heat Co. has drilled into the salt sand at a test on the William Meighan farm. The hole has filled up 800 feet with fluid.

On Merritts Creek of Guandotte River, McCoams district, Cabell County, the Commercial Gas Co. completed and shot in the shale formation, 1,100 feet below the Berea grit, its test on the Florence Keyser farm. It is a gasser good for 700,000 feet. On the same stream and in the same district, the same company has the rig completed for a test on the C. A. Morrison farm.

Marshall County

In Liberty district, Marshall County, the Manufacturers Light & Heat Co. has completed a second test on the W. B. and Emma Calvert farm. It is a fair gasser in the Big Injun sand. In Center district, the Hope Natural Gas Co.'s second test on the John R. Simmons farm is a duster in the same formation.

Starting and Drilling Tests

In McKim district, Pleasants County, Neely & Co. have started to drill a test on the Charles C. and Rebecca J. Delong farm. In Union district, Tyler County, the Big Bend Oil Co. has started to drill a second test on the Susan Colvin farm. In Walker district, Wood County, V. B. Darby has shut down to repair the rig on the J. S. Heck farm. In Clay district, Rothwell & Co. are due in the sand on the J. S. Burdette farm. Starcher & Thornly have started to drill on the Mary E. Mertz farm, Grant district, Ritchie County. In Murphy district, C. W. Baker & Co. have shut down at 500 feet on the James A. Hardman farm. In Clay district, W. A. Bickerstaff is due in the Big Injun sand on the P. H. Hiney farm.

The Columbia Gas & Electric Co. has started to drill on the R. Nida farm, in Sheridan district, Lincoln County. In McComas district, the Commercial Gas Co. has the rig completed for a test on the Charles Morrison farm. In Barboursville district, same county, Ortman & Shipe are rigging up on the M. E. and C. Merritt farm. The Grant Gas Co. has shut down to repair the rig on the Lee Dent farm, in Curry district, Putnam County. In Sherman district, Calhoun County, the White Pine Oil & Gas Co. has made a location on the W. S. Barnes farm. In Elk district, Harrison County, the Chemical Oil Co. has started to drill on the Mary E. Norman farm. In Ten-Mile district, same county, Burke & Lyons are rigging up on the W. T. Williams farm.

The Hope Natural Gas Co. has rigged up to drill a test on the G. B. Howell farm, in Washington district, Calhoun County. In the same district, Norris & Cain have made a location on the Nancy Jarvis farm. In Union district, Tyler County, Morgan Brothers have drilled to a depth of 1,652 feet on the Clara Thorn farm and shut down. In Center district, Wetzel County, Wade & Boundy are due in the Gordon sand on the William Smith farm. W. E. Evans & Co. have a rig up on the W. E. Parriott farm, in Liberty district, Marshall County. In Union district, the Hicks Oil Co. has started to drill on the George Rusia farm.

Harrison County

In Union district, Harrison County, the Reserve Gas Co. has recovered a part of the 6⅝-inch casing, lost when it parted in its deep test on the Chapman Smith farm. The string had been welded when put in and its recovery is necessarily slow. In Ten-Mile district, Orlandus West has rig material at a location on the Charles Lanhan farm. In Clark district, the Clarksburg Light & Heat Co. has drilled to a depth of 3,077 feet on the A. J. Sheets farm and shut down. In the same district, Rapp & Nutter have made a location on the G. C. Nutter farm.

Southwest Pennsylvania

In Wayne Township, Greene County, H. E. Milliken & Co. have a gasser in the Bayard sand at a test on the H. & W. Cole farm. In Center Township, the Carnegie Natural Gas Co. has started to drill on the C. T. Goodwin farm. In Aleppo Township, the Black Creek Oil & Gas Co. is fishing on the Bert Lohr farm.

In Perry Township, Greene County, the Peoples Natural Gas Co. has started

(Continued on Page 98)

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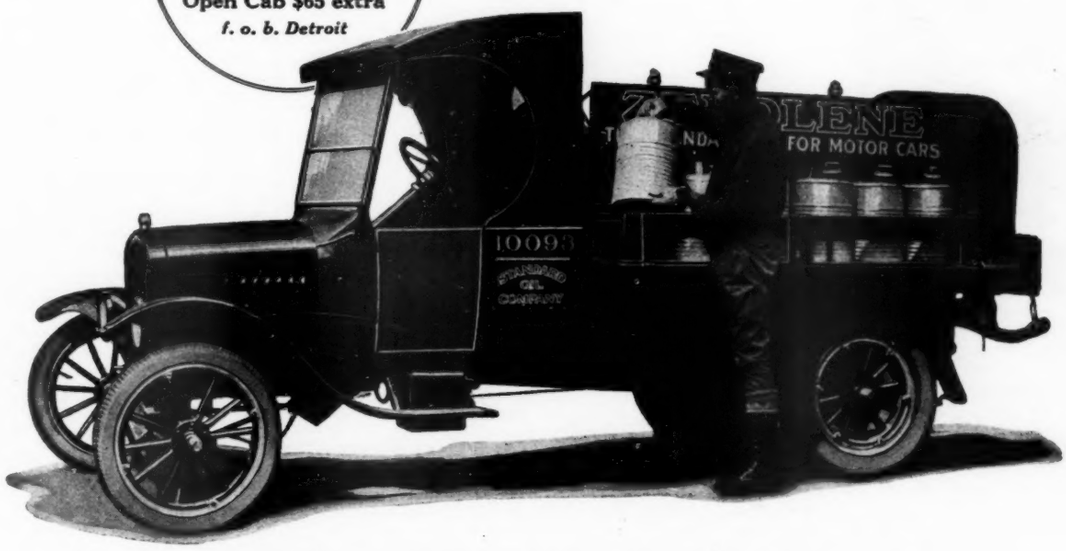

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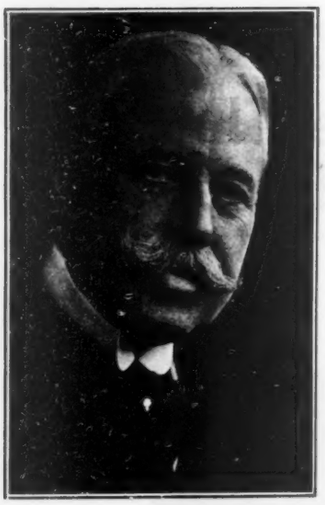


Charles M. Higgins

Charles Melbourne Higgins, vice president of the Standard Oil Company of New York, one of the best known oil men in the East, was born at Meadville in 1857. He began in the employ of the Standard Oil Company of Ohio at Cleveland, Ohio, in 1872 and became a director in the Standard Oil Company of New York in 1911. Later he was made vice president. He is a member of the American Gas Institute and various gas light organizations.

In a lecture before the Asiatic class of the Standard Oil Company of New York, Mr. Higgins told some interesting facts about his life.

"On September 8, 1872, when a strip of a boy, I applied for a position with the Standard Oil Company and was told by the cashier to call the next morning to meet John D. Rockefeller. That morning we entered into a business arrangement which was of great importance to me."

Mr. Higgins described his rise to a bookkeeping job and his first sales trip in Ohio.

"Later on, a new department now called the statistical department, was formed. The formation of this department fell to me. I started the records. Then they gave me a position in Canada in one of the offices of the company. This was a stepping stone to a return to Cleveland to take up another line of work, which was to give me some knowledge of refining and the marketing of naphthas, gasoline, gas oils, etc."

Mr. Higgins' grandfather moved from Connecticut in a covered wagon across the Alleghenies and settled on a farm of his own clearing at Greenville, Pa. Mr. Higgins' father, William L. Higgins, was born on this farm. His mother was born on a farm in Cumberland County, Pennsylvania. His father with a partner named Frank Rich put down one of the first wells at Pithole. This was a failure and left them deeply in debt. His father stood for the debts and paid them. The family at that time lived in Meadville, where Mr. Higgins was born. From Meadville the family moved to Cleveland where he finished the common school education and became the first office boy for John D. Rockefeller.

PERSONAL PARAGRAPHS

R. E. Burger, chief engineer of Henry L. Doherty & Company, was a visitor recently at Cleveland.

* * *

R. E. Haylett of the Union Oil Company has been in New York but returned for the Oil Institute convention.

* * *

George A. Chadwick of the Cities Service Company's New York office while attending the annual meeting of the Cleveland Bankers' Association, paid a visit to the company's Cleveland office.

Edward P. Fritz of the Tulsa offices of the Atlantic Refining Company spent the past week in Denver, Colo.

* * *

Francis John, for more than five years assistant purchaser in the Tidal organization, resigned, effective January 1.

* * *

Max W. Ball of Denver, head of the Argo Oil Company, was a Casper, Wyo., visitor looking over the local offices and the plans for moving to Denver.

* * *

Charles Young, accountant, with the Penn Mex Fuel Company, with headquarters at Tampico, Mex., spent the holidays with his parents at Taylorstown, Pa.

* * *

Joseph Jenson, chief geologist of the Associated Oil Company, has just returned to Los Angeles from San Francisco where he spent a week on company business.

* * *

H. R. (Hank) Leland, Leland Truck Equipment Company, Tulsa, Okla., visited Chicago where he attended the annual meet of the American Association of Road Builders.

* * *

Howard Carnahan, chief gauger of the United States Bureau of Mines, with territory consisting of all of the Rocky Mountain region, was a business visitor in Casper, Wyo.

* * *

John Edwards, formerly with the Pure Oil Company at Cincinnati, Ohio, has been appointed sales manager of the Paragon Refining Company with headquarters at Toledo, Ohio.

* * *

Mr. and Mrs. Levi Ackley of Tulsa announce the birth of a daughter on January 4. Mr. Ackley, better known as "Pete," is pipe line superintendent for the Independent Oil & Gas Company.

* * *

Joe Morris, former Secretary of State of Oklahoma, who is a member of the executive staff of the Marland Oil Company, has had his headquarters transferred from Ponca City to Oklahoma City.

* * *

Donald Eyssen of Toledo, Ohio, who recently graduated from Ohio Wesleyan University at Delaware, Ohio, has entered the Doherty cadet school with the Empire Gas & Fuel Company at Bartlesville, Okla.

* * *

W. I. Brashears of Wichita Falls, Tex., has opened an office in the Travis Building in San Antonio, Tex., and will operate in that district. He is arranging to drill a well in Wilson County, south of Lavernia.

* * *

Harry Fair of Arkona, Ont., formerly manager of the Petrolia hydro-electric system, has left via New York for Ecuador, under a three-year contract as head mechanic for the International Petroleum Company.

* * *

R. L. Clifton, until the first of the year chief geologist for the Healdton Oil & Gas Company, has entered the employ of the Sinclair Oil & Gas Company and is in charge of subsurface work in the Enid district.

* * *

Neuhaus & Meek of Dallas, Tex., have opened an office in the Travis Building in San Antonio, Tex., and are preparing to wildcat in the San Antonio territory. The firm is composed of V. F. Neuhaus and J. H. Meek.

* * *

R. G. Taylor, former oil operator in the Wyoming fields and now directing the work for the Gibson Oil Company in New Mexico, visited Casper, Wyo., and spent several days on business and renewing old friendships.

* * *

Edgar J. Marsten, J. R. Penn and John Hancock, all of the Texas Pacific Coal & Oil Company, have been in the San Antonio territory recently looking over some properties. The company is interested in some leases and drilling wells in South Texas.

* * *

George S. Young, formerly with the General Petroleum Corporation, has become associated with Robert H. Goodwin and will devote his future time to developing petroleum and mining properties. Young and Goodwin have offices in Oakland, Calif.

S. E. Murphy, assistant sales manager of the Empire Refineries, Inc., left Tulsa this week for a six week's business trip to Georgia, Alabama and Florida. Mr. Murphy will make temporary headquarters at the company's offices at Atlanta, Ga.

* * *

Lionel T. Barneson, president of the General Petroleum, is nursing a severely wrenched back sustained in an automobile accident near Huntington Beach, Calif., a week or so ago. Mr. Barneson is up and around again after being confined to his bed for a week.

* * *

J. B. McFate, purchasing agent for the South Penn Oil Company, reached the retirement age and has been placed on the annuity roll. Mr. McFate's services as purchasing agent for the South Penn Oil Company extended over a period of 27 years. He will be succeeded by E. W. Kartlick.

* * *

The Kanotex Refining Company of Arkansas City, Kan., announces that A. F. Morrison, manager of sales, has been obliged to take an enforced vacation owing to ill health, and is now at Rochester, Minn., for treatment. During his absence, Lloyd Lesh, formerly president of the Lesh Refining Company, will take charge of the sales department.

* * *

M. R. Singleton was named vice president and general manager of the Paragon Refining Company of Toledo, Ohio, when the board of directors met at Cincinnati recently. Mr. Singleton, who has been in charge of the Paragon for the past two years, has made a very efficient official for his company, which has advanced rapidly during his reign.

* * *

A party of geologists loaned by the Gypsy Oil Company to the Gulf Production Company have sailed for Colombia, South America, to explore that region for the Gulf interests. The party consisted of Virgil B. Cole, Oscar Hatcher, geologists, and A. C. Gilbert, instrument man. They have contracted to remain in the tropical country one year.

* * *

R. L. Forest is back in San Antonio, Tex., from having spent the summer in Alaska where he has mining properties. Mr. Forest was early on the ground in the Laredo territory in Texas when the Mirando Field was discovered a few years ago and has extensive leases there at this time and has returned to San Antonio after looking over the situation in Webb County.

* * *

National Oil Company of Kansas City, Mo., has opened offices in the Bedell Building, San Antonio, Texas, and will wildcat extensively throughout Southwest Texas. The San Antonio office will be the principal office of the company and C. J. Webster, the president, and 25 employes of the company are in San Antonio at this time and will live there. The company was recently organized and it is understood will take over some other concerns.

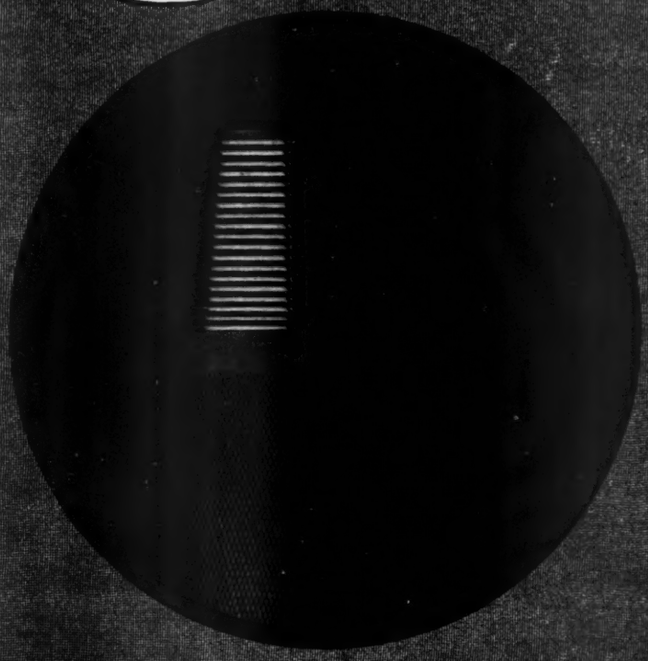
* * *

The Sinclair Oil & Gas Company has occupied its suite of offices on the seventh floor of the City National Building, Wichita Falls, Tex., having moved from its former temporary office in the Bradford Building. The offices will be in charge of O. L. Alcock, superintendent of the land and lease department for the North Central Texas division. Others of the personnel are K. F. Foster, chief geologist, and R. T. McNally, associate geologist.

* * *

F. H. Dickison, vice president and general manager of the Tide Water Oil Sales Corporation, has announced the appointment of his staff, which includes four product sales managers in charge of various products sold by the company, an advertising manager and an operating manager. The home office staff includes George K. Hambleton, motor sales manager; Ralph T. Gilpin, grease sales manager; Willard H. Ray, gasoline sales manager; J. Lloyd Bailey, industrial sales manager; Frank W. Clark, advertising manager, and Lisle W. Sweet, operating manager. In the field, the four departments which comprised the Eastern territory have been consolidated into three departments. The field managers are Waldo Emerson, central department manager; Frank D. MacEachern, eastern department manager; Carroll C. Rowland, Metropolitan department manager; J. Walter Greenleaf, northeastern department manager; F. Morris Rowles, western department manager.

"an acknowledged Leader"



The HUGHES TOOL JOINT

"Sold by Supply Stores Everywhere"

HUGHES TOOL COMPANY

Branch Plants
Los Angeles, Calif.
Oklahoma City, Okla.

MAIN OFFICE AND PLANT
HOUSTON, TEXAS

Export Office
New York City, N.Y.

NATURAL GAS DEVELOPMENTS

SMACKOVER OPERATORS URGE CONSERVATION

EL DORADO, Ark., Jan. 16.—The advisory board of the Department of Conservation, composed of oil men representing 50 per cent of the production in the Smackover Field, has asked Governor Terral to make a determined effort to enforce laws relative to the conservation of natural gas in the district, with the statement that unless something is done toward that end in the near future members of the board expect to resign and recommend to their respective companies that they get as much production as quickly as possible and by any means at hand, "take up their pipe lines, close their offices and seek other fields better regulated to their endeavors."

The meeting came as a protest to the alleged repeated wanton waste of natural gas by a number of companies in the Smackover Field. Unless immediate steps are taken for the preservation of the third sand gas, according to the resolution, the strata will be dissipated within a very short time at the present rate, the first and second sands having been wasted long ago, according to the members of the board.

The immediate cause for the meeting was a suit filed by members of the conservation department and State officials, in which they sought to secure temporary injunctions against five operators alleged to be using natural gas for the blowing of oil wells, which is a direct violation of the State conservation law.

Companies named in the injunction were the Lion Oil Refining Co., the Natural Gas & Fuel Corp., the Woodley Petroleum Co., the Unity Petroleum Co. and the Magnar Production Co. Attorney Joseph Mahoney appeared in court for the Lion company, declaring that to shut down the 28 wells involved in the injunction proceedings would cut production 50,000 bbls. per day, meaning an irreparable loss to the field, and ruining many of the wells. It was on this plea that the petition was refused.

Denying the charge that such procedure would cut production in the Smackover Field nearly 50 per cent, the resolution of the board states that the combined production of the 28 wells is only 5 per cent of the total for the field. "Furthermore," the resolution says, "should the 28 wells be closed either temporarily or permanently, the oil will remain in the ground for further production."

The resolution was as follows:

"The laws of the department of conservation and inspection of this State are the best in the country since they are based upon those of other States and have been passed upon by competent authorities. The trouble now is in the enforcement and either the laws should be enforced or taken off the statute books. This body recommends that the department be given deputies familiar with the oil business and with sufficient backbone and at equitable pay, to enforce the law after recommendations have been made by the advisory board.

"The oil and gas industry in Arkansas in point of investment and future wealth is the largest in the State. When laws relative to this industry are violated we recommend that the chief, not his assistants, should come to investigate, and if necessary, the chief executive himself.

"The injunctions requested by the department applied to only 28 wells, a careful check of which showed a combined production of only 5 per cent of the Smackover Field. This, notwithstanding that attorneys for the defendants represented production would be curtailed 50,000 bbls. per day through such a procedure. Should the entire 28 wells be closed either temporary or permanently the oil will remain there for future production. A shutdown would only affect the wells temporarily and production could be resumed in a short time with the installation of air machines. The personnel of this board represents 50 per cent of the production of the Smackover Field, none of which comes from wells blown by gas.

"No oil is being produced by gas that could not be more economically produced by air. By using any type of air machine oil can be produced cheaper than by blowing with gas at 3 cents per 1,000 cubic feet.

"The entire consumption of gas in the city of El Dorado for all purposes is 5,000,000 cubic feet per day. The total amount now being wasted to blow these 28 wells under discussion would take care of 10 cities the size of El Dorado, or a total of 56,000,000 per day. If gas were used to generate steam the same wells would require only 5,000,000 feet.

"The entire production of the South Field is dependent upon the Smackover Field for gas. Should it become necessary to import gas, production there would be greatly impaired.

"As representatives of 50 per cent of the production in the Smackover Field, this body wants to go on record as being emphatically in favor of the conservation laws and stands for their enforcement to the letter. Should we have to produce with foreign gas the expenses of production would be increased 15 times. Production would be lowered 10 per cent by using oil for fuel, entailing a like reduction in severance and royalty.

"We want to say to the governor and the department of conservation that we have been conscientious in trying to advise so that both the State and operators would be protected; that our recommendations in the past have been for the greater part ignored; and that unless there is a determined effort on the part of the governor to enforce the laws, we expect to resign and recommend to our companies that they get production as quickly as possible and by any means, including the blowing of wells with natural gas, take up their pipe lines, close their offices and seek other fields better regulated for their endeavors."

REFUGIO COUNTY GAS INJUNCTION ISSUED

AUSTIN, Tex., Jan. 16.—The Supreme Court has granted writs of prohibition and injunction in response to the petition of O. R. Seagraves against John M. Green, judge of the Twenty-Fourth Judicial Court. The Supreme Court enjoined all writs made by Judge Green in Chambers, where he is alleged to have directed the sale of gas from the Smith well on the Heard lease in Refugio County, and from two offset wells ordered to be drilled. All such orders are suspended pending the motion of the Seagraves-Moody interests for writ of certiorari to the Supreme Court to have the latter tribunal review all proceedings had therein.

This is a continuation of the contest between the Houston Oil Co. and the Seagraves-Moody interests in an attempt to supply natural gas to Houston. Seagraves-Moody interests depended on the Smith well and are building a pipe line to Houston to supply gas by March 1, under heavy bonds. The Houston Oil Co. also has similar intentions.

GAS ELECTION AT DUNCAN

An election has been called at Duncan, Okla., to submit a proposed issue of $250,000 in bonds to be used in installation of a municipal gas plant. The Western Oklahoma Gas & Fuel Co. has a franchise there and retails gas at 72 cents per 1,000 cubic feet. Residents who urged the city commission to call an election believe cheaper gas can be had under a municipal system.

GAS FROM NEW SOURCE PUZZLES DALLAS USERS

DALLAS, Tex., Jan. 16.—While more than 40 inspectors and other employes of the Dallas Gas Co. searched for the cause of the sudden stoppage of gas to Oak Cliff, Trinity Heights and adjoining additions late Tuesday, 75,000 residents of that part of Dallas shivered without fire and without cooking facilities. It was found that the difficulty arose when the supply from the Lisbon gate was turned on. Return to the former source of supply ended the gas shortage.

A new source of gas supply turned into the mains Tuesday afternoon is believed to contain such a high percentage of noninflammable gas that it will not burn, R. G. Soper, secretary of the Dallas Gas Co., said.

F. L. Chase, vice president and operating manager of the Lone Star Gas Co., supplying the Dallas company, said this new supply came through a newly laid 18-inch main from Stephens and Shackelford Counties. Gas from part of that territory has been used in Dallas in the past and gave satisfaction, he asserted. He expressed belief that the difficulty was due to air in the new main and that the gas would give good service as soon as the new main was flushed out.

"The first complaints," Mr. Soper stated, "were that the gas had gone entirely out. Later complaints developed that the gas would flow but would not burn.

"We immediately dispatched men to ascertain the source and extent of the trouble. We found that those portions being fed from a new connection near Lisbon were the only sections affected. This new connection was put into service Tuesday. Apparently the source of supply into our connection had been contaminated by admixture of some noncombustible gas. We have no control over the supply of gas beyond our connection with the source of supply and cannot therefore definitely explain how the supply became contaminated. We believe the trouble has been effectually remedied by shutting off the gate at Lisbon and switching back to the old supply. This new supply came from West Texas."

GAS MAY TANK OIL 300 FEET ABOVE WELL

LOS ANGELES, Calif., Jan. 16.—A mechanical feature which is unusual in California oil field practice is being worked out in the Ventura Avenue Field by the Associated Oil Co., which is making preparations to handle heavy production from No. 101 Lloyd, which may be completed in the course of a couple of weeks.

This well is on the steep side of the hill, in Hall's Canyon, a couple of miles east of the developed area of the Ventura Avenue Field. From the top of the hills, above the avenue, where the No. 18 Lloyd is situated, to the location of No. 101 Lloyd is a drop of about 300 feet.

Under ordinary conditions, upon completion of No. 101 the Associated would have to run its oil into a sump hole or tank and pump it from there to the top of the hill, where it might be turned into the pipe line and taken to the tank farm.

No statement concerning its plans for the completion of No. 101 Lloyd have been made by the Associated, but the company is building a gas trap at the top of the hill, above No. 101 Lloyd, and is planning to make the gas pressure in this well carry the oil to the tank farm, thereby saving the cost of lifting all the oil to a height of perhaps 300 feet.

The gas trap will be coupled up with the flow nipples of the well, when the latter is completed, and the gas pressure of the well will thereby be compelled to lift the oil to the gas trap where the gas will be trapped and carried to the absorption plant, and the oil will flow on down to the Associated tank farm.

So far as has been learned this plan has never been carried out in connection with any other oil well in the State. It is considered highly practical by field men because of the fact that the Ventura Avenue wells have unusually heavy gas pressure.

NEW GASOLINE PLANT IN SIGNAL HILL FIELD

LOS ANGELES, Calif., Jan. 16.—The California Gasoline Corp., operating in the Signal Hill, Inglewood and Rosecrans fields, is completing a new gasoline absorption plant in the northwest extension of Signal Hill, and expects to have it in operation soon. The plant has a capacity of about 20,000 gallons of gasoline a day. To begin with it will operate with an output of about 12,000 gallons a day, it is said.

The new wells in the new district are fair gas producers, according to gasoline experts, who assert that the wet gas from the wells averages about one gallon of gasoline per 1,000 cubic feet, and the wells range between 700,000 to 1,000,000 cubic feet of gas output a day.

A peculiarity of gas-producing oil wells is that as the oil production and gas production drop, the gasoline content of the gas increases in proportion. The percentage of gasoline in the gas produced by a new well is almost always less than the percentage of gasoline in the gas flow of an old well, although the actual quantity produced may be greater in a new well, due to the larger quantity of gas. For this reason the gasoline content of gas flowing from wells in the old portion of Signal Hill is considerably greater than in the new district.

The most prolific gas production and the richest gas in southern California is found in the Rosecrans fields, in the Maxwell district where many wells average more than 1,000,000 cubic feet of gas a day, the gasoline content often running more than 3 gallons per 1,000 feet.

CREEK COUNTY GAS CO. WINS FIVE-YEAR SUIT

OKLAHOMA CITY, Okla., Jan. 16.—After years of litigation the Creek County Gas Co. was winner in a case instituted against it by the Shaffer Oil & Gas Co., which had entered into a five-year contract to buy gas from the Creek County Gas Co. for the use of the Shaffer refinery at Cushing.

By the terms of the contract made in 1920, the Shaffer company agreed to pay 20 cents a 1,000 cubic feet for gas when the general rate in effect there for industrial purposes was 15 cents.

In 1921, the contract was altered by agreement, making the rate 17 cents. Later the Shaffer company went before the Corporation Commission, claiming the 17-cent rate was discriminatory, and asking refunds from the Creek County company totaling about $100,000.

When the complaint of the Shaffer company was filed, the commission placed the rate at 14 cents and on final determination of the case refused to make refund or disturb the contract.

The Shaffer company appealed to the Supreme Court. The first opinion reversed the Corporation Commission but the opinion handed down upheld the opinion.

THE page reproduced below by courtesy of *The Mack Bull-Dog* indicates the growing use of pneumatic tires in commercial work—a use made possible by the Budd-Michelin Dual Wheels shown here.

Budd-Michelin Duals and pneumatics are saving tremendous wear and tear on these chassis, eliminating much of the driver's fatigue, getting more speed with safety on the straightaway, better traction in mud and sand and the economy of 15,000 to 30,000 miles from a set of tires. Let us tell you how.

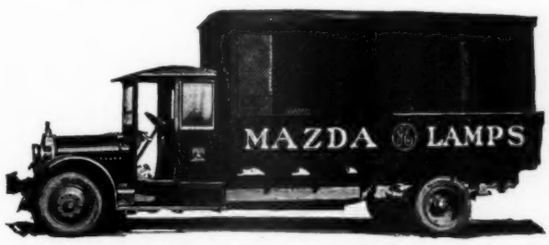
BUDD

Detroit WHEEL COMPANY *Philadelphia*

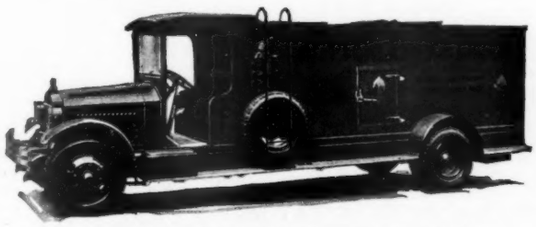
New But Practical Uses for the Bus Chassis

It has been found that the Mack bus chassis, equipped with rubber tires and rubber shock insulators, is ideal insurance against breakage, and one that meets all the requirements of speed within the law. The bus chassis, however, is not infringing on the field of the motor truck. It is instead opening up new commercial highway transport possibilities because of its adaptability to requirements heretofore not covered by the slower-moving motor truck of greater capacity.

Where freshness of the product counts: The Pretz Sticks Bakery Co. of Myerstown, Pa., uses the above van body mounted on a Mack bus chassis for night runs to New York City



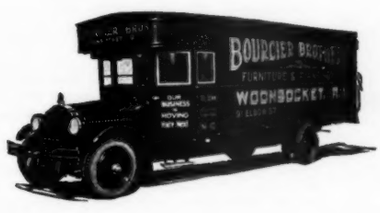
This shock insulated bus chassis as a preventive against load breakage is used for transporting lamps of the General Electric Company from Cleveland to Youngstown and return, a distance of 140 miles



The Peerless Ice Cream Co. of Sacramento, Calif., to whom time is money, operates this rolling refrigerator de luxe to deliver ice cream over a long haul route among Sacramento retail distributors

Transportation facilities commensurate with the value of the load seem to be the sentiments of the J. Norman Geipe Co., interurban haulers of valuable furniture in Baltimore, Md.

One of seven units in the service of the Indian Refining Co. for speeding up retail deliveries. Its selection of a Mack bus chassis was no doubt due to the performance of their 116 Mack trucks



Another type of furniture van used to transport and protect household goods. Operated by Bourcier Bros. of Woonsocket, R.I.

Three glass-lined insulated tanks, mounted on Mack shock insulated bus chassis, deliver milk in excellent condition. Owned by Ira W. Wilson, hauling contractor for the Detroit Creamery Company

EQUIPMENT AND SUPPLIES

RECLAIMED OIL TESTS HIGH AS LUBRICANT

That some large consumers of lubricating oil are assisting in the search for greater service from lubricants is evident from the following article which appeared in the "De Laval Centrifugal Review," the organ of the De Laval Separator Co., of Poughkeepsie, New York:

"After having rendered much valuable assistance in developing the De Laval crankcase oil reclaiming outfit, the Yellow Cab Co. of Philadelphia, began the regular use of the first one of these machines manufactured some six months ago.

"The Yellow Cab Co., of Philadelphia, operates some 850 cars out of a number of garages located in different sections of the city. Its crankcase oil reclaiming outfit is installed in one of the most centrally located of these garages and oil is trucked from the other garages for reclamation.

"Since its installation, the outfit has been operated on a strictly commercial basis by ordinary garage help, and the results indicate that the outfit will pay for itself in oil savings alone in less than one year from the date of installation. The recovery of oil averages 85 per cent, amounts to approximately 1,000 gallons a month, and costs per gallon about one-third as much as new oil when bought in large quantities.

"Best of all the reclaimed oil is restored to so nearly its original condition that an oil company representative recommended soon after the machine was installed that one storage tank for both new and reclaimed oil be provided. This recommendation was followed and during practically the entire time the outfit has been in operation the new and reclaimed oil has been mixed together in this tank without any attempt at holding to certain percentages of either product.

"As indicating the results obtained by the crankcase oil reclaiming outfit at the Yellow Cab Co. the following table showing the viscosity, flash and fire points of new oil and of the same oil after purification will be of interest:

Viscosity—	New Oil	Reclaimed Oil
(Saybolt @ 100°F.).	336 sec.	370 sec.
Flash	360 deg.	345 deg.
Fire	400 deg.	400 deg.

"In the run mentioned above, only 1 per cent of the total oil obtainable was lost in processing. Eighty-seven per cent of the total volume of dirty oil was returned as good oil, whereas an analysis made before treatment showed a possible recovery of 88 per cent good oil, the remaining 12 per cent consisting of impurities as shown below:

Dilution	10%
Sediment (carbon, metallic particles dirt)	1½%
Water	0.1 of 1%
Oil	88%

HEAVY STEEL SHAFTS FOR DEEP DRILLING

For deep drilling many operators plug the tubular shafts of their steel bull wheels and calf wheels with cement. Heretofore, the heaviest tubular steel shaft on the market was 18-inch diameter with the shaft walls ½-inch thick. Even with the cement reinforcing such shafts have been known to bend or spring, so that the actual worth of the reinforcement is questionable.

Recently the Parkersburg Rig & Reel Co. developed an 18-inch diameter tubular steel shaft with the walls 1⅛-inch lar shaft with the wallq 1⅛ inches thick—an increase in the sectional area of over 216 per cent.

Parkersburg steel bull wheels and calf wheels are now available with these extra-heavy tubular shafts—which are particularly intended to withstand the strain and shock of deep test drilling.

REPORT SHARP PICKUP IN BUYING OF OIL COUNTRY TUBULAR GOODS

By B. E. V. Luty

PITTSBURGH, Pa., Jan. 18.—After nearly two months of decided dullness in the buying of oil country tubular goods, there has been a sharp pickup in the past week. Previously there had been a little increase in activity, since the first of the year, but not enough to count. Now, however, bookings are running at a decidedly higher rate, though of course not nearly at normal or average.

Much of the increase in buying has been for the Pennsylvania oil fields, the explanation of this early buying being the opportunity to move material to drilling sites by sled as the ground is frozen and there is plenty of snow. Similar conditions apply to a number of other fields.

Pipe mills have been encouraged further to look for heavy business this year, by the continued decrease in oil production. The present rate is considered below normal and is expected to furnish a great stimulus to drilling this year.

There has been a slight increase in buying of merchant pipe by jobbers generally. Not much would be expected thus far as inventory work is scarcely out of the way. Jobbers' stocks of merchant pipe having been down to almost nothing for a long time, a moderate replenishment is in order, though no large building up of stocks is expected. Shipments have been so good in the past year, and railroad movement so expeditious, that jobbers have no occasion to amass large stocks. That there will be much heavier requirements in the spring, when building operations can be actively prosecuted, is taken for granted, and as the jobbers will not stock up much against this movement the mills have to carry the stocks. There has been quite a replenishment of mill stocks in the past two months, whereby a mill operation of 60 to 65 per cent has been maintained when the rate of shipping would not have justified any such rate.

Large Stocks

As the mills now have practicaly as large stocks as it seems necessary to carry, the increase in buying that has just occurred is not likely to work out in any increase in mill operations this month, since the mills do not need to add any more to stocks.

Throughout the steel market, in general, the quietness that came over the market early in December still prevails. There is perhaps a little more buying and specifying, but not much change is noted. Expectations are that by the end of the month buying in the various steel lines will be in full swing again.

In nearly all lines mills have been well fortified with specifications. In merchant bars they are specified into February. Thus mill operations are easily maintained despite the temporary dullness of the market, and are fully equal to the average rate in November and December.

High Production

Steel ingot production in December is reported at 3,975,824 gross tons, the largest monthly tonnage since March. Production throughout the fourth quarter of the year was at a high rate, equivalent to about 47,000,000 tons a year. The quarter's production was but little under that in any three consecutive months of the past, and there is the difference that in the past such a high rate was never maintained for more than about three months, while this time it looks as if the present quarter would show fully as large a production. In that case a new production record for six consecutive months will be made.

The Steel Corp.'s unfilled obligations increased 451,584 tons in December, making 1,520,561 tons increase in four months, after six months of successive decreases. Unfilled tonnage at the end of December was 5,033,364 tons, equal to 4.3 months of production at 85 per cent of capacity.

Steel prices are very steady all along the line. No weakening is shown at any point while on the other hand, there are no definite predictions of advances in any quarter.

OPENS TULSA OFFICE

Harry J. Walker, manager of the western division of the Andrews Steel

Harry J. Walker

Co., of Newport, Ky., which covers the oil industry, has opened an office at 502 Cosden Building, Tulsa. Mr. Walker has been 16 years in this territory, for 5 years with Ryerson and 11 years with the Andrews company. He is a steel specialist, being an old hammersmith and can make all oil field tools himself were it necessary.

SWAB ACTS AS AGITATOR-PERFORATOR CLEANER

The Simplex Equipment Co. has produced a swab known as the Simplex that the inventor claims will fulfill every known requirement. The following essential features have been given primary consideration: Elimination of the threaded joints, prevention of overloading, reduction of wear on rubbers and metal parts, increase in area of fluid opening, Reduction of cost, and simplicity in assembly.

While it is necessary to have more than one rubber on many swabs because of the freezing and cooking tendency the Simplex swab requires only one rubber. A special rubber supported by a fibrous material is used and the rubber is impregnated with graphite which permits of self-lubrication. The fibrous material is an economical feature that allows the highest grade of rubber to be used on the friction surface and also permits of even distribution of wear.

The Simplex Super-Swab is constructed without a threaded joint and in such a manner that the exact amount of fluid desired may be lifted without any danger of overloading. The reduction of wear on rubbers and metal parts is accomplished by making each wearable part reversible. Perhaps the most radical improvement is in the unusual design, which, while extremely simple, enlarges the area of the fluid opening permitted in the various popular makes of swabs now in general use.

Reduction in cost is effected by virtue of the fact that solid one-piece stem and regulator can be used for all sizes of casing, the only additional expense being the various sizes of rubbers required, as all sizes of rubbers are adjustable to the swab proper. The adjustment is so simple that rubbers in the same, or different sizes may be changed in a few seconds.

The simplicity of the design is a feature which will have a strong appeal to the oil producer as there are few parts to adjust and the most inexperienced roustabout can operate it with safety.

In fields where screen or perforated pipe is used some operators have experimented with a certain type of swab by reversing it and running down to the bottom of the casing to clean out the clogged perforations. The Simplex Super-Swab performs this function naturally at any time, or during the swabbing operation, for it can always be run to the bottom of the well without danger of overloading, and its construction is peculiarly adapted to the creation of the necessary pressure to immediately and effectively clean out the perforated pipe, thereby increasing the flow of oil, and then pick up the deserted load when pulling out.

In addition to the primary functions for which the device was designed, the Simplex Super-Swab has also been found to be particularly adapted for use as an agitator while performing its normal function, and while being used as a perforation cleaner.

BESSEMER SALES CONVENTION

The Bessemer Gas Engine Co., of Grove City, Pa., held its annual sales convention at the home office in Grove City recently.

All of the field men were called in from the branch offices and each was given the benefit of facts and ideas expressed by members of the different branches. The basic idea of the convention was to promote user cooperation and service and to give the scattered field men a chance to become more closely acquainted with other members of the organization and to exchange ideas and experiences at first hand.

Not only was the convention a decided success from the point of view of work accomplished, but all of the men had a mighty fine time as well. A banquet was given for the field men and the factory foremen and superintendents.

BONUS FOR EMPLOYES

Reflecting the expansion of its business during 1925 and indicating its appreciation of the work of employes, officials of Wilson Oil Tools Corp., distributors for Wilson & Willard Manufacturing Co. products, announced a bonus which has been distributed to all employes associated with the firm for a period of more than one year. The company has distributed a bonus of 10 per cent of the entire year's salary to these employes. During the past year the manufacturing concern has introduced several new refinements in oil well equipment among which are included a two-ply slotted screen pipe and new model of elevator and an improved rotary drive bushing. Folders rescribing these products have been printed for general distribution.

L. E. McCUNE PROMOTED

L. E. McCune, who has been district manager of the Murray Rubber Co. at Kansas City, Mo., was promoted January 1 to western manager of the company in charge of all territory west of the Mississippi River.

REED
ROCK BITS

A Tool of Many Purposes

The Reed Rock Bit is not only a Fast, Sturdy, Economical Tool, for use in cutting hard formations.

It is the Perfect Reamer.

It may be used for reaming down hole after completing and before setting casing, thus eliminating any possibility of a stuck job in setting casing.

Reed Reamers may be built up in tandem, from a Bull Nose or Diamond Point to any size desired, and equipped with Smooth Rollers for rolling out collapsed casing.

While not so designed or sold, Reed Rock Bits have been used in a large number of instances in connection with whipstocking and cutting out through casing and making new hole, or for cutting up junk dropped in the hole, such as chain, fish tails, tools, etc.

Reed Roller Bit Company

NEW YORK HOUSTON LOS ANGELES

REED ROCK BITS

Electrification in Petroleum Industry

Progress That Has Been Made in Recent Years in Extending Use of Electricity in the Oil Fields and Oil Refineries

By H. E. Dralle
General Engineer, Westinghouse Electric & Manufacturing Co.

The oil industry growing within the last few decades from a position of slight prominence to one of the foremost in the world has always shown a desire to adopt new ideas or improved methods, which would effect economies in placing finished products on the market. While some of these developments and improvements may, on the surface, appear to have been long delayed much credit is due those in authority for employing the best available equipment for their ever changing conditions. Of the many opportunities afforded by the industry for increased operating efficiency, none is perhaps more far reaching in its scope and possibilities than the one item of Electrification.

That there has not been a more rapid and general adoption of electric drive throughout the industry is not so much due to the failure to appreciate its many advantages as to lack of an economic and dependable source of power supply. No matter what operating features or engineering advantages there may be in favor of any broadly applied power system, its ultimate success will depend upon the cost of producing desired results when compared with other available systems. For these reasons steam and gas engines have for many years been justly and indisputedly used in oil field applications to which they were so peculiarly adapted that they could scarcely be considered competitive with each other. As a consequence, they became the standards by which other types of drive were to be gauged and naturally enough, any new device proposed had to compare more than favorably with them from the standpoint of both operation and economy. It was under such conditions that the electrification idea had to be inaugurated, but judging from its rapidly increasing use in every branch of the industry, its success cannot be questioned. There will, however, always be localities so remote from an adequate power supply or so situated that only local advantage can be taken of available resources, where it would be impractical and uneconomical to use anything but steam, gas, and oil engines for the major field operations.

Rig Lighting

One of the first and most apparent uses for electricity in the industry was that of rig lighting. Electricity with its many attendant advantages not only furnished more and better illumination than was obtainable with the oil lamp but greatly reduced the fire hazard and generally increased the efficiency of the operators as would be expected of an adequate lighting system.

From the electric lighting of rigs it was a small step, where power was available, to apply motors to pumping, the simplest of major oil field operations. The first application of alternating current electric drive to this class of service was made by the South Penn Oil Co. in the Appalachian field near Folsom, W. Va., over 20 years ago. These motors were of the squirrel cage type rated at 5/10 h.p. and were capable of handling light pumping duties only. The 5 h.p. connection is used for pumping and at infrequent intervals the high speed is resorted to for pulling rods and tubing and for agitating the well.

The squirrel cage motors referred to, still operating today, amply demonstrated their ability to meet the usual pumping requirements in that locality, but the necessity for high torques in pulling rods and tubing and frequent cleaning of wells in less favorable territories soon brought about the development of a so-called single speed star-delta motor designed particularly to give high operating performance for both the pumping and cleaning operations accomplished on the star and delta connections respectively. While these motors gave reasonable satisfaction, they lacked speed for performing heavy operations; consequently, to minimize the shut-down time on the wells the two-speed motor was introduced.

Pumping Motors

The first two-speed wound rotor pumping motors to find a wide field of application were rated 15/30 h.p., 600/1200 RPM. and especially designed to give high efficiency and power factor on the low speed or pumping side and high thermal, as well as pulling capacity on the high speed side for performing operations about the well other than pumping.

Widely varying conditions in different localities demanded motors of the same general operating characteristics but of different ratings. As a consequence, the 15/30 h.p. was changed to 15/35 and other ratings added were the 10/25 h.p. for light fields and the 20/50 and 25/65 h.p. ratings for the deeper territories. This type of motor is particularly applicable on pumping wells which require frequent pulling of rods and tubing and heavy cleaning and swabbnig operations. To equip a lease with this type of motor in preference to using small squirrel cage motors for pumping and portable rigs for cleaning will cost considerably more initially, but increased production obtained by having each well a complete independent unit can be easily capitalized against the increased cost of installation and from this the proper electrification program followed. With squirrel cage motors the efficiency and power factor will be inherently higher on account of the higher speed of operation and the fact that the motors will operate more fully loaded; however, the objections to portable pulling and cleaning equipments, essential when squirrel cage motors are used, often more than offset the features favorable to the squirrel cage type of drive.

Reduction Gear

One of the greatest factors affecting the future type of pumping equipment is the reduction gear, produced originally to replace the countershaft and one belt. However, it has been developed and perfected to such a degree that its influence upon present accepted methods of oil well pumping has been almost revolutionary. The employment of gears has made possible not only the use of high-speed prime movers, including the multiple cylinder gas engines of the industrial truck type, but also the substitution of efficient drives on pump, hoist drum and sand reel for the inefficient, troublesome, and power-consuming band-wheel, bull wheels, and friction-driven and reels. The most modern reduction gears are arranged so that different set of gears and pinions can be easily replaced to produce different number of strokes on the pump, a feature which avoids operating the motors inefficiently and resistance in the secondary circuit. The sprockets between the gears and hoist drum can be made of suitable ratio to allow maximum desirable speeds for pulling the rods and tubing. Adoption of this type of gear will doubtless again revive interest in the use of single speed, wound rotor motors for pumping service, to replace present two-speed motors.

Every field presents problems that must be solved with a full knowledge of local working conditions, but regardless of the method of pumping employed (beam, jack, powers, compressed air, etc.) the electric motor affords advantages that cannot be overlooked where an adequate and dependable source of power is available. It has been conservatively estimated that in a given period 10 per cent more oil will be obtained from wells pumped by motors than by any other method. This is due to the steady and continuous motor operating characteristics which result in less attendance, minimum shut-down periods, decreased maintenance of rigs, less rod troubles and consequently longer life to equipment. These conditions will be directly reflected in the cost per barrel of oil pumped. Dependent upon power costs in different localities, savings by pumping electrically may reasonably vary from 3 to 8 cents per bbl. over other methods.

Miscellaneous Uses

In addition to well pumping, electricity was readily applied to the field water supply and distribution pumps, oil gathering pumps, salt water disposal pumps, compressor plants, vacuum pumps, machine pipe straightening, cutting and threating machines, as well as to other miscellaneous uses, and finally to drilling. It is not surprising that drilling should be the last of the field operations to be performed electrically. Not only were there difficulties in application which had to be avoided but there were also certain standards of operating performance set by steam drives that had to be equalled or excelled before serious consideration could be given to electric drive. This is true for both cable tool and rotary drilling.

One of the greatest obstacles to a more widespread adoption of electric drive, particularly in rotary drilling, is the possibility of failure of the power supply, with consequent unavoidable results which often prove disastrous. The hazards connected with power failure are too well known to require further discussion. Although the use of steam does not entirely eliminate such hazards it does have a tendency to limit them. Power supply companies realizing the importance of continuity of service are daily increasing the insurance against total power failures for objectionable periods of time. The reliability of present-day power supply is too often unappreciated.

Mechanical features of operation no longer present potential objections to electric drive since adjustable speed motors, control, and reduction gears have been developed to meet all requirements of rotary drilling. The motors are rated at 75, 100 and 125 h.p., 10 pole, and are designed to operate on either 50 or 60 cycles.

There has been developed within the last three years a rotary drilling equipment known as the Hild Universal drive. Except to say that this is positively the last word in rotary drilling equipment nothing more need be said here since there is a paper which treats this subject alone.

Slush Pump Drive

Concomitant with the development of drilling motors was the application of motors to slush pump drive. Originally, slush pump motors were belt driven, as this was the simplest method of connecting the motor and pump and there was the added advantage in this arrangement that the motors were removed from the derrick floor and at heavy loads belt slippage served as a safety factor to prevent excess pump pressures. Belt slippage is not a very positive protection for the mud pump; consequently, with the introduction of safety pressure valves the necessity for belt drive disappeared and geared pumps were introduced. The many desirable features of geared pumps

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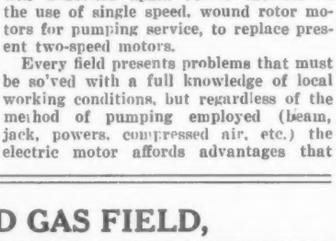
*Before Sixth Annual Meeting, American Petroleum Institute, Biltmore Hotel, Los Angeles, California, Afternoon Session, January 21, 1926.

BLOOMFIELD OIL AND GAS FIELD, SAN JUAN COUNTY, NEW MEXICO

Survey Made By Government Geologist

Interest in the Bloomfield Mesa Field was aroused by the completion, on November 15, 1924, of the Bloomfield Oil & Gas Co.'s No. 2 well, in the NE cor. NW NW. Section 22-29-11w. at a depth of about 706 feet. The well had an initial daily yield of 5 or 6 bbls. of 64 degrees Baume oil with considerable salt water. The light gravity of the oil and its occurence at so shallow a depth led to active exploration in nearby areas, and by the latter part of June, 1925, when the field was visited by W. W. Boyer and G. H. Hansen, of the Geological Survey, Department of the Interior, seven wells had been completed, capable of producing daily from 1 to 6 bbls. of oil each. Moderate flows of gas, some of it carrying appreciable quantities of gasoline, had been developed by several other wells. The largest gas well gave an initial yield of about 2,000,000 cubic feet of dry gas a day, which was piped to different parts of the field and used as boiler fuel in drilling.

According to J. B. Reeside, Jr., the indurated rocks exposed at the surface of Bloomfield Mesa are of Tertiary age and belong to the Torrejon formation of the Nacimiento group. At depth the wells penetrate the Ojo Alamo sandstone, of Tertiary (?) age, below which are the Upper Cretaceous (?) McDermott formation and the Upper Cretaceous Kirtland shale. The Farmington sandstone member of the Kirtland shale, which usually occurs at about the middle of the formation, contains the productive beds. This member, composed of lenses of sandstone in shale, is of fluviatile origin and is therefore very variable in thickness and composition, although persistent as a unit for many miles along its outcrop around the San Juan Basin. Observations by Reeside and others show that the individual sandstone beds are not persistent and may be entirely replaced



Index map showing area covered by recent Geological Survey publications.

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Ready for High Compression Engines

Oil Industry Prepared but Automotive Industry Has Been Somewhat Backward in This Progressive Step

By A. Ludlow Clayden*
Chief Engineer Gas Engine Research, Sun Oil Co.

It is very often assumed that the price of gasoline is bound to increase, but this is probably an erroneous view. It is obvious to any man of business that the oil industry has everything to gain by keeping the price of gasoline as low as possible because a substantial increase in price would inevitably reduce the demand. Without any doubt we shall learn means to convert a higher proportion of crude into motor fuel, and we are also already producing fuel of steadily improving quality, thus I am convinced that in any estimate of the future conditions it is safe to assume, for many years to come, a supply of gasoline adequate to meet the demand of steadily improving quality, and at a price not far removed from that of today.

If these premises are admitted, it is logical to ask why we need trouble about the efficiency of engines in which gasoline is burned. The gasoline bill is only a minor item in the cost of operating an automobile. It is a little more important in the case of a motor truck and a bus, it is more important still for the aeroplane. However, there are certain fundamental laws which cannot be denied, and one of these is that the lower the cost of anything which is useful to man, the more will it be used and the more will its use benefit mankind. The cost of operating motor vehicles of all kinds can be, and undoubtedly will be, much reduced. The reduction will be effected not by any one great change, but by a multiplicity of small improvements, and a better thermal efficiency in the engine is one of the items.

Lower European Standards

There is a general belief that the European automobile is more efficient than the American. This is entirely untrue. The European type of passenger car does cost less to operate if the first cost be neglected, but it is less powerful, less comfortable and less convenient. The standard of living throughout Europe is very much lower than it is here. The European is accustomed to putting up with many conditions of life which we would regard as almost intolerable. If the American automobile had never developed beyond the standards of performance and comfort of the European, its use in America would not have been nearly as great. The few attempts which have been made to introduce the European type of small car have been conspicuously unsuccessful. The American public does not want it and it is perfectly logical and correct in its attitude.

Thus the economy in automobile operation which Europe has obtained has been an economy of going without something, and the proper ideal of economy is so to utilize your resources that you do not have to go without things.

For a good many years past the automobile industry has been telling of the wonders it could perform if only the oil industry would provide it with a different sort of fuel, but through all this period practically nothing has been done to engines to improve their efficiency, that is, their economy as power producers, although there are a number of things which are well known and which could have been done. I am going to come back later to some of the little things, but just now will confine my attention to the one point which the automotive people have talked about most consistently, and that is, the economy possibilities resulting from the use of higher compressions.

It is a fact that with any internal combustion engine the thermal efficiency is increased as the compression pressure is raised. It is also a fact that the compression pressure that can be used varies over a very wide range with different liquid fuels. The universal use of higher compressions in gasoline engines does necessitate some alteration in the chemical constitution of gasoline, but that change is already under way and will take place rapidly during the next few years. How great that rapidity will depend very much upon whether the automobile manufacturers proceed to take advantage of it very soon or whether they neglect to observe their opportunity.

Because it is an essential part of my whole argument I want to mention some things that are undoubtedly well known to most of those present. First of all, there is so far no theory to explain why some fuels kuock or detonate, while others do not do so when burned under the same conditions. In petroleum we have a series of hydrocarbons varying from the paraffins to the benzines. From the detonation viewpoint light paraffins are good, but as the paraffins become heavier they rapidly grow worse and worse. The benzines are all good, if anything the heavy aromatics are better than the light ones. All the other constituents of motor fuels vary between the two.

Suitable gasoline for high compression engines can be obtained in several ways. At present, for aviation work, mixtures of gasoline and benzol are used, or else gasoline doped with tetraethylead. Both methods are expensive and, of course, the supply of benzol as a by-product of coal is very limited. It is, I think, inconceivable that either of these aviation methods could ever become general, and if we face the problem of making all gasoline suitable for high compression some other method must be employed.

Cracking Increasing

Some of my friends in the automotive field have complained that nobody ever talks about gasoline without quoting reams of statistics. I do not believe it is necessary for me to use any figures to support my next point, which is, that the proportion of cracked to straight run gasoline is increasing, that probably rather more than half our present gasoline is straight run, but that within a comparatively short time we shall reach the point where half our supply of motor fuel will be a cracked product. Cracking in the laboratory has now reached a stage where paraffins can be converted into true aromatics or members of the benzine series. Commercial cracking does not yet go quite so far, but cracked gasolines inevitably contain a low percentage of the heavier paraffins as compared with the constitution of the charging stock.

Of course, cracking has been developed mainly with the aim of producing the best possible yield of material of adequate volatility, and it is a happy accident that cracking methods which are efficient from the yield viewpoint also generally produce products which are low in paraffins. At the present time there is no recognized standard method of testing for detonation or anti-knock quality, the different investigators using different methods, therefore, it is difficult to compare the data of one laboratory with another. Straight run Mid-Continent gasoline of approximately United States specification is an excellent example of a bad gasoline from the detonation viewpoint, although an excellent example of an excellent gasoline in several other respects. Comparison of anti-knock quality between this type of fuel and another is very frequently made in terms of percentage of benzol. Suppose for instance we require a fuel suitable for an engine with a 6 to 1 compression ratio. This might require 60 per cent of benzol with 40 per cent of such a gasoline as I have just mentioned. A straight run California gas might only need 20 per cent to give the equivalent performance, and a few cracked gasolines are now being made commercially that would require no benzol at all.

Cracking Potentialities

Today some refiners, in developing their cracking equipment, are giving attention to the anti-knock quality of the product as well as the yield and other considerations, but I believe that such refiners are still a minority. Despite the enormous strides in the art of cracking we still know comparatively little about its possibilities. We shall very soon reach the stage where half the gasoline produced will be cracked. Of the cracked gasoline now being produced a large proportion is suitable for use in engines with considerably higher compressions than the normal. There is enough anti-knock gasoline being made today to take care of the requirements of hundreds of thousands of high compression cars. The production and distribution of such cars would be followed immediately by the necessary changes in the distribution of gasoline so that the anti-knock fuel would be obtainable everywhere. This would temporarily involve some extra distribution costs, and it might, in some localities, be necessary to charge not over 1 cent a gallon extra to the motorist for the anti-knock gas, but this would be a temporary condition.

The main point that I wish to make is that there will never be a supply of anything on a large scale until there is a demand. The position today is that the petroleum industry has already, on the average, improved the detonation quality of gasoline considerably, and within the next five years can improve it a great deal more. Whether it will do so or not is in the hands of the automobile manufacturers. Reading the published statements of automobile engineers and hearing them talk, the impression gained is that their industry is waiting until an ideal fuel is available everywhere, and when this happy day arrives they will then proceed to build engines to take advantage of the new possibilities. I do not believe that things ever work that way. The petroleum industry has taken the first step and is all set to make rapid forward strides. It is time that the other partner began to assume his share of the burden.

Change Should be Slow

Still confining my attention to this question of compression, it is much easier to change such a product as a gasoline engine by slow degrees than by a sudden, rapid alteration. Changing over from the manufacture of a low compression engine to a high compression one is not nearly so simple as it sounds because the higher compression brings with it higher temperatures and pressures. If we are able eventually to use compressions of 6 to 1 or more it will certainly be necessary to develop both valve and ignition systems, and very probably other matters also. This, at least, was the experience with aviation engines and there is no reason why it should not be repeated with automobile motors.

There are two particular points which should be given very serious consideration by the automotive industry today. First, slight increase in the compression

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*Before American Petroleum Institute, Los Angeles.

STATUS OF THE OIL BURNER IN HEATING INDUSTRY IS DISCUSSED

By Homer R. Linn*
Engineer Western Executive Office, American Radiator Co., Chicago

Domestic oil burners are usually classed in two general divisions of vaporizing and atomizing. Vaporizing burners employ heat in some form to properly vaporize the oil before it is mixed with the air to form combustion. Atomizing burners usually break up the oil into a mist or vapor by means of violently agitating the oil—some using a centrifugal motion, others using compressed air, while others pump the oil through restricted orifices at a high velocity. In any case the object sought is the same, that is, of having the particles of oil so thoroughly broken up that it is easy to surround each small particle with the proper amount of air to furnish the necessary oxygen to completely burn the oil to carbon dioxide.

The growth of the oil burner in domestic heating has been fraught with many difficulties, in that the manufacturer not only had to solve the problem of correctly burning the oil, but had to make a burner which would handle oil of different grades. He also had to make a burner that would do all of this in a boiler of warm air furnace that had been designed to burn solid fuel. It is apparent that his problem was not his own. In other words, he was at the mercy of the man who furnished his fuel as well as the man who furnished his heating boiler or furnace. It speaks volumes of praise to the successful oil burner designer, because he has been able to meet and solve these perplexing difficulties.

In the problem of the development of the domestic oil burner the elements of dirt, noise, attention, etc., are all factors, in its successful operation.

Control Systems

Much has been said about the control systems now in use on oil burners. Some burner manufacturers have told me that a large majority of their trouble calls come from inefficient or defective control systems. Much praise must be given the Underwriters Laboratories for their untiring efforts to solve these difficulties. The fact that there are now waiting in the Underwriters Laboratories at Chicago, 97 burners of various types and sizes to be tested as to their safety controls, shows the interest taken by the different burner manufacturers in their endeavor to produce the safest, as well as the most efficient oil burner. Every burner should really be safe, efficient and fool-proof, in order to take its just place in the average home where it will receive only ordinary care.

The further classification of burners can be made under the heading of power, or blower type, and gravity, natural draft. Up to this time the natural draft burners, as a rule, have not been able to show the same degree of efficiency as the blower type. This has largely been due to the fact that it is hard to main-

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*Before American Petroleum Institute, Los Angeles, January 21.

Automatic Control in Well Drilling

Development of Differential Gear to Accomplish This Result as Employed in Electric Rotary Operations

*By Thomas Fleming, Jr.,
Vice President Oil Well Supply Co.

The need of an automatic control in drilling operations has been recognized by leaders amongst the oil producers for many years. This need has become more pressing as drilling operations have gone to greater depths requiring more power and heavier equipment and involving a larger outlay in time and money for the completion of a single well.

In 1922 Frederic W. Hild, of Los Angeles, brought to the Westinghouse Electric & Manufacturing Co. and Oil Well Supply Co. the idea of using a differential gear set to accomplish this result. These two companies agreed to undertake the development of this device and after considerable experimental and test work had been carried out, the first of these outfits equipped for electric drilling started operating in December, 1923, for the Chanslor Canfield Midway Oil Co. at Torrance, Calif. This outfit was remarkably successful in that it not only demonstrated the practical application of the theory of this device but also proved to be properly designed and constructed. Only a few minor changes have been necessary in outfits sold since the first outfit, and the first outfit is still being operated and is in first-class condition. Six wells have been drilled to date with the first outfit.

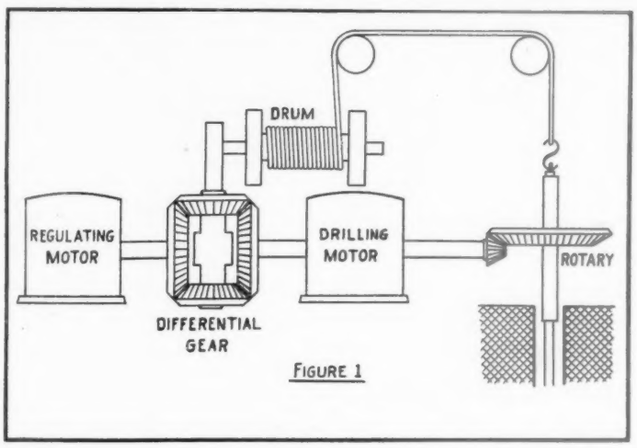


FIGURE 1

Following the initial installation in California, the Gulf Production Co. decided to install an outfit on its properties at Hull, Texas. This outfit started drilling in the summer of 1924 and has completed successfully five wells to date. The equipment is reported to be in first-class condition showing practically no wear.

The present development of the drive is for electric rotary drilling. It can be developed for the steam or internal combustion engine, but electricity was selected for the first development on account of its flexibility and closer unformity of control. The apparatus and the principles of operation are very simple. There are no intricate devices or complicated arrangements of mechanism.

Drive Described

Briefly, the drive consists of a differential reduction gear and two motors assembled as a unit. These motors drive the bevel gears which operate on the differential gear. It is the function of one motor to drive the rotary table. The second motor operates to control the differntial which is connected to the hoisting drum of the drawworks.

To understand just how these two motors function to produce automatic drilling let us consider the operation of this differential gear. When both bevel gears revolve in the same direction at equal speed the differential revolves in the same direction at the same speed. When both bevel gears revolve in opposite directions at equal speed the differential is stationary. When there is a difference in the speed of the bevel gears, both operating in the same direction, the differential will rotate at the average of the two speeds, and when they are operating in opposite directions the differential will rotate in the direction of the gear with greater speed and at one-half the difference in these speeds.

Therefore, when the two motors are running at or near full speed in opposite directions the hoisting drum of the drawworks, which we have already noted is attached to the differential, can be rotated forward or backward by a slight variation in the speed of one motor.

These speed changes may be caused by load variations which is the condition when automatically feeding the drill stem for drilling. One motor is then driving in the direction of lowering the drill pipe and is operating the rotary while the other motor is driving in the opposite direction and operating against the differential with a tendency to hoist the drill pipe. If the brake is set the differential is stationary and the two motors are at equal speed. The rotary machine and the drill stem are then rotating but the drill stem does not move up or down. When the brake is released, the weight of the drill pipe pulling on the hoisting drum exerts a torque on the differential and consequently on the two motors. This will tend to speed up the motor operating the rotary and slow down the other motor. Consequently with difference in speeds the drill pipe will start to move down. The effect of this descending weight on the drilling motor is to induce a negative load on it and consequently it functions as a generator and serves as a dynamic, regenerative brake. This coupled with the hoisting action of the other motor limits the rate of downward movement of the drill stem and prevents any sudden drop.

Limiting Pressure

When the bit presses on bottom, the drilling motor receives a load and tends to slow down. As this load increases, the downward movement of the drill stem approaches zero as the drilling motor is approaching the speed of the regulating motor and when some serious obstruction is encountered such as boulders the drill stem moves upward as the speed of the hosting motor will then exceed that of the drilling motor. It will, therefore, be seen that by adjusting the speeds of the two motors, a limiting pressure on the bit can be set and the bit will automatically retrieve when this pressure is reached. It will also be noted that by operating both motors in the same direction the combined power of both motors can be utilized for hoisting purposes.

No complicated mechanical apparatus has ever met with approval or success in this branch of the petroleum industry and this particular apparatus is free from this objectionable feature entirely. The gear case and motors are mounted on a common base and occupy about the same space as a twin engine.

This unit replaces the usual steam equipment of boilers and engine. It is located in the same position as occupied by a twin engine, in the rear of the drawworks. The only difference between the arrangement of the two is that the differential drive requires two chains to the line shaft of the drawworks. One chain is connected to the drive sprocket on the line shaft exactly the same as in the case of a twin engine. This chain handles the entire load in pulling the drill pipe out of the hole when both motors are compounded. During drilling it is operated by the differential gear. The other chain engages a quill sprocket keyed to the line shaft and located in the same position on the line shaft as the sprocket which drives the rotary when a twin engine is used. This chain is driven by the rotary drive motor and upon the hub of the sprocket on the line shaft is the clutch and sprocket that drives the chain connecting with the rotary table. This special quill arrangement can be installed in any standard type of drawworks.

Control of Motors

The electric motors are controlled by a throttle located in the same position as it is in operating a steam outfit and connected by telegraph cords to the controllers of the motors. This throttle is composed of two wheels compactly arranged on the same axle which permits the motors to be controlled individually. Stop push buttons are also installed at the throttle position which will permit the motors for both the gear set and the pumps to be shut down instantly in case of emergency. Under ordinary conditions of drilling up to a depth of 4,000 feet, two 15-35 horsepower variable speed motors of the reversible type can be used in operating the gear set, and two 50-horsepower motors in operating the slush pumps. In deep drilling at 35-horsepower and 75-horsepower motor are required on the gear set. The size of motors depends on the character of drilling and size of drill pipe.

The operator when drilling with the Hild electric drive throws the brake wide open and often leaves it for the full length of the "Kelley." Records on several wells drilled show steady operation for four solid hours. This automatic feed reduces the strain on the machinery and equipment which is experienced in the intermittent method of applying the brake in hand operation and at the same time gives the driller more time to supervise.

Record of Operation

An important item of auxiliary equipment for the use of this outfit is a recording graphic watt meter. This is installed in the power line to the differential drive and furnishes a continuous record of the power operation from which it is possible for the staff office to determine exactly what has gone on. In fact, it gives a complete drilling history of the well. Additional information can be secured covering the pumping operations by placing one of the meters in the pump power circuit.

It has been mentioned previously in these pages, that 11 wells have been drilled with the first two units built. The following tables show the drilling time, power consumption and cost of power required in drilling these wells. The table showing the records of the wells drilled by the Gulf Production Co. also

(Continued on Page 84)

Record of Wells Drilled by Chanslor-Canfield Midway Oil Co. With Hild Differential Drive December 27, 1923-July 20, 1924

	Torrance		
	No. 29	No. 62	Average
Number of days drilling	87	90	88.05
Number of feet drilled	3,702	3,705	3,703
Number of K.W. hours consumed	57,240	78,840	68,040
Average Number feet drilled per day	42.06	41.02	41.09
Average K.W. used per foot drilled	15.05	21.03	18.04
Average K.W.H. used per 24-hour day	658	876	767
Power rate	$.01928	$.01307	$.01617
Total cost of energy	$1,193.59	$1,030.44	$1,067.01
Average cost of energy per foot drilled	29.8c	27.8c	28.8c
Average cost of energy per 24-hour day	$12.68	$11.45	$12.06

Record of Wells Drilled by Chanslor-Canfield Midway Oil Co. With Hild Differential Drive April 22, 1925-November 10, 1925

	del Amo				
	No. 27	No. 28	No. 34	No. 92	Average
Number of days drilling	38	37	39	26	35
Number of feet drilled	3,660	3,663	3,675	3,400	3,599
Number of K.W. hours consumed	39,500	42,540	37,980	24,600	36,155
Average Number feet drilled per day	96.03	99.00	94.03	130.07	105.08
Average K.W.H. used per foot drilled	10.08	11.06	10.03	7.02	9.97
Average K.W.H. used per 24-hour day	1,039	1,150	974	947	1,028
Power rate	$.00963	$.00952	$.009758	$.00911	$.009504
Total cost of energy	$376.23	$404.92	$370.61	$224.11	$343.97
Average cost of energy per foot drilled	10.3c	11.0c	10.1c	6.6c	9.5c
Average cost of energy per 24-hour day	$9.96	$10.94	$9.50	$8.62	$9.74

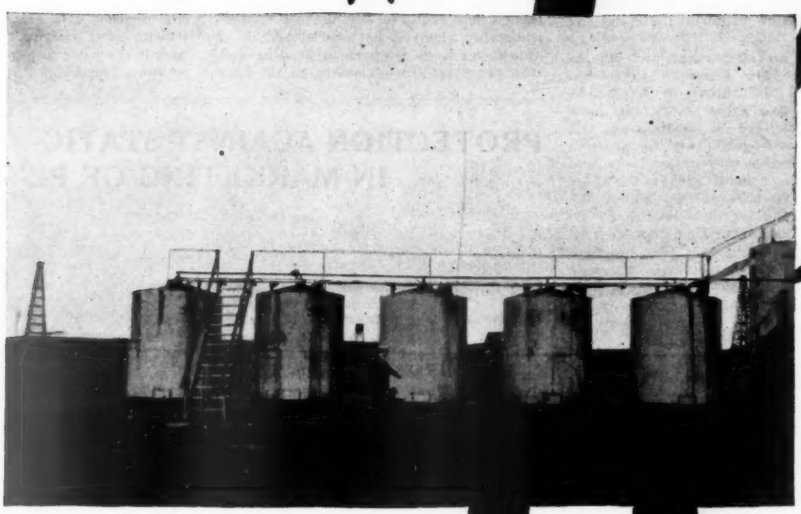
Record of Wells Drilled by Gulf Production Co., Hull Texas, With Hild Differential Drive July 29, 1924-December 1, 1925

	Scarborough		Phoenix			
	No. 13	No. 15	No. 53	No. 55	No. 59	Average
Number of days drilling	57	74	44	33	48	51.02
Number of feet drilled	3,049	3,943	3,423	3,469	3,374	3,451
No. K.W. hours consumed	36,288	48,096	33,660	27,705	30,780	35,305
Average No. feet drilled per day	53.03	53.02	77.00	105.00	70.00	71.07
Average K.W.H used per ft. drilled	11.09	12.02	9.08	8.00	9.01	10.00
Average K.W.H. used per 24-hr. day	637	650	765	840	641	7.07
Total cost of energy	$725.76	$961.92	$673.20	$554.10	$615.60	$706.11
Average cost per ft. drilled	23.8c	24.4c	19.7c	16.0c	18.3c	20.4c
Average cost energy per 24-hr. day	$12.73	$12.99	$15.30	$16.79	$12.82	$14.13
Estimate fuel cost steam drive—						
Estimate total cost fuel, steam drive	$2,137.50	$2,775.00	$1,650.00	$1,237.00	$1,800.00	$1,919.90
Estimate average cost fuel per ft. drilled steam drive	70.1c	70.4c	48.2c	35.6c	53.3c	55.5c
Summary:						
Energy cost, steam rig	$2,137.50	$2,775.00	$1,650.00	$1,237.00	$1,800.00	$1,919.90
Energy cost, Hild electric rig	725.76	961.92	673.20	554.10	615.60	706.11
Saving over steam rig	$1,411.74	$1,813.08	$976.80	$682.90	$1,184.40	$1,213.79

Electric energy cost 2 cents per K.W.H. Estimated cost of steam based on 25 bbls. of oil per day at $1.50 per barrel.

*Before Group Session, American Petroleum Institute annual meeting, Los Angeles, Calif.

$16 a day



Would this be worth anything to you?

Sixteen dollars a day is what the battery of American welded tanks in the above picture is earning for its owner, with a production of 100 barrels.

Accurate tests made in the field show that oil kept in these welded tanks had a gravity of 40 degrees, compared to 38 degrees for bolted tanks they replaced.

This means an increase of 16 cents per barrel.

In other cases the gravity increase has been as high as one to three degrees. You don't have to be an economist to figure that out.

These tanks are made of heavy-plate steel painted light gray and coated with No-ox-ide on the interior to make them rust-proof.

They are rapidly coming into general use in the Mid-Continent Field, as every trial shows a good saving from their installation.

This saving may mean the difference between good times and poor times for your company. Fall in line now—with a battery of American Welded Tanks.

AMERICAN TANK COMPANY

OKLAHOMA CITY, OKLA.
TULSA, OKLA.

"AMERICAN TANKS HOLD GRAVITY"

SEEKING SAFE TRANSPORTATION OF EXPLOSIVES ON RAILROADS

By Col. B. W. Dunn*
Chief U. S. Bureau of Explosives

In April, 1905, James McCrea of the Pennsylvania Railroad told the American Railway Association that some concerted action by the railroads was necessary to promote safety in the transportation of explosives. Serious explosions had occurred in transit and shipments of explosives were accepted and handled by many roads without special treatment. Many small plants were making explosives without specifications or supervision by any outside agency. There was no check on their packing and loading methods. A loaded car offered at an interchange point had to be accepted on faith. It might prove to be a death-trap.

The association appointed a committee to study and report. Mr. McCrea was made chairman and Doctor Dudley, chief chemist, Pennsylvania Railroad, was a member. Before the committee could meet a carload of dynamite exploded near Harrisburg and added additional force to Mr. McCrea's arguments. In November, 1905, his committee presented the first set of proposed rules. It covered explosives only and was a small affair when compared with the present I. C. C. regulations. It represented, however, an important and difficult first step. The rules were approved by the association and adopted by practically all the railroads. Very few men in the explosive plants or in the train crews of railroads knew anything about the rules. The practical effect on safety in transportation was negligible. The idea of a central bureau whose inspectors would act for all roads came next and was approved by the American Railway Association in November, 1906.

The first definite conclusion from our study was that the proposed work must have the voluntary and active support of the explosive industry as well as of the operating and traffic departments of the railroads. A long conference with these elements represented took place. The manufacturers of explosives had grievances and expressed them vigorously.

After a long discussion they consented to admit the soundness of the following fundamentals:

Agree on Fundamentals

1. The small, inexperienced and careless manufacturer is a menace to the reputation of the industry and to the safety of the public. Reasonable and proper regulation would be a good thing for him and could be effected without hardship by proper inspection of his plant and proper laboratory examination of samples of his product.

2. While not so necessary in the larger plants, the same kind of inspection would not cause any serious difficulty and might even be of some advantage under some conditions.

3. The joint responsibility to the public of the shippers and carriers of explosives does make it desirable to adopt the most promising and reasonable plan to promote safe transportation.

The manufacturers agreed to co-operate in giving the plan a trial. They considered the trial a doubtful experiment. It proved to be completely satisfactory to the explosive industry. In a short time its representatives were changed from doubting critics to willing partners.

Our next conclusion, reached after an experience of several months, was that while education and appeal to reason would constitute our principal source of pressure for enforcement of the rules, we would need a more definite and positive source of power to meet exceptional cases. This positive support was furnished by the Act of Congress of May, 1908, and this was secured in large measure by the assistance of the explosive industry. As you know, it invested the Interstate Commerce Commission with power to prescribe rules for the safe transportation of explosives with penalties for violations of the rules.

The great and important fact for us today is that the American Petroleum Institute and the Bureau of Explosives representing two great industries, have the great privilege of originating and formulating any good rule to promote safe transportation of your products, and with reasonable assurance that in a short time it will be part of the law of our land without the necessity of waiting for our national legislature to pass it. All we have to do is to satisfy our industries and the Interstate Commerce Commission that it is a good rule.

Getting Observance

A good rule, however, is only another paper statue until enlivened by observance. Our difficult and never-ending task is to secure enforcement. We want millions of intelligent men to acquire the habit of doing certain things in the right way. By some means we must reach and impart to them (1) knowledge of the right and wrong ways; (2) the desire and will to select the right way; (3) the habit of following the right way. In other words, it is our aim and our responsibility to make these millions of oil and railroad men "enthusiastic seekers of safe transportation."

Enthusiasm like water flows downward quite readily, while great effort is required to force it upward. We cannot expect our employes to absorb any more than a percentage of our own enthusiasm. Unless it be anger and suspicion, no sentiment is more contagious than indifference. Let us realize our great responsibility as leaders in this search for safe transportation.

Nature has given to certain materials qualities that cause fires and explosions under favorable conditions. To fight these qualities is to fight nature, an enemy, or a friend, that never sleeps. If we win a battle against this enemy today and then sleep, the same fight will be renewed and lost tomorrow. We fight for human life as well as for dollars. To stimulate your sympathy for this cause let me cite a typical illustration of the way nature punishes ignorance.

About 15 years ago an oil man heard of a new kind of gasoline being produced in Pennsylvania and ordered a tank car shipment for trial. When the car reached his siding he went with assistants to unscrew the dome cover and get a sample. When the cover was nearly unscrewed, interior pressure stripped the remaining thread and tossed the cover upward. It was followed by a spout of gasoline rising many feet and forming a ball-like mass of vapor resembling in appearance an immense white snowball that settled slowly downward and rolled with the wind toward a switchman's shack containing a fire. On contact of the vapor ball with the fire the white was changed immediately to a brilliant red. Vapor from the interior fed the fire as it mixed with the air and the red ball continued to roll with the wind. Directly in its path was a frame cottage occupied by a family of seven, ranging from the grandfather to the young baby. The ball of fire was larger than the house and enveloped it completed. No member of the family survived.

One experience of this kind ought to be sufficient to kill all indifference and kindle universal enthusiasm for the enforcement of safety rules. Unfortunately the inertia of human indifference is deep rooted. That accident has been duplicated in scores of tank cars since 1911. One of them came near destroying the town of Ardmore.

Is is worth while to fight the deep-rooted human indifference to safety rules which permits a recurrence of such accidents. Most assuredly we must fight it and we must combine to fight it.

You represent a great industry essential to our national prosperity. In developing it you have fought continuously. You have fought nature's obstacles and simultaneously you have had to meet attacks from the rear directed at times by unfair or misinformed critics of your industry. To overcome all of these obstacles has required the highest type of leadership and you have developed it. I appeal for your support in keeping safe transportation conspicuously on the combined docket of these two great industries. If our viewpoints and convictions diverge on any question let us assume that one of us is in error and join in an honest search for that error. If we cannot find it the Commission will help us, and then let both of us forget that the error ever existed. Let us declare that "In seeking safe transportation the petroleum and railroad industries do not permit the word 'failure' to apply for long to our undertakings."

*Before American Petroleum Institute at Los Angeles.

PROTECTION AGAINST STATIC IN MARKETING OF PETROLEUM

By J. A. Watterson*
Standard Oil Co. of Ohio

The phenomenon of static electricity is rather difficult to explain. Some writers believe static is built by friction, while Dr. Elihu Thompson proves that static can be built up without friction. It would seem, however, that static as applied to the oil industry is usually caused by friction. Most authorities agree that what really takes place is a separation of positive and negative parts of electricity, which permits a building up of one or the other until a high enough potential is reached to cause a spark to jump across an air gap.

There are but two things to do to remedy this condition, either prevent the separation, or provide an easy means of rejoining. It would appear that the most practical way to meet this situation would be to ground the danger points and thus make it unnecessary to provide a means for the rejoining. If there are metallic connections between any two points and these connections are unbroken and uninsulated, there should be no trouble from an electric spark, because in this way there can be no difference of potential between the two points. It is along these lines of grounding that we must look for a solution of this problem.

To interconnect and ground all metallic parts of apparatus handling inflammable liquids is not an expensive operation, and with ordinary precautions static electricity is not a dangerous element. In the recommendations of the Static Committee of the American Petroleum Institute an effort has been made to recommend only such precautions as are aboslutely necessary. An elaborate system of bonding and grounding to guard against static, would be very costly and a burden on the industry and also might result in a feeling of security which would allow more dangerous hazards to exist unnoticed.

Stray Currents

In answer to the questionnaire sent out by the static committee, it was noted that static electricity is being confused with stray currents in general. Reports of fires at first attributed to static have been traced to many other causes. Stray currents running between electric street car tracks parallel with side tracks and which were both crossed by electric interurban lines is one that has been noted in several reports. This is a hazard that is entirely different from static and as each case has its own peculiarities, must necessarily be handled as such. Insulating of side track and bonding of pipe lines to side track and all other equipment will usually remedy this condition. However, the simple rules as suggested by the Static Committee for bonding to unloading points will form an additional protection. It must be understood these rules will not eliminate stray currents and are devised for static only, but will greatly reduce the hazard. A few of the larger companies are combining their static and stray current protection. However, this makes a very complicated and expensive installation and is furnishing protection against a hazard that exists in only a few isolated locations. I believe a simple and inexpensive bonding system, if properly installed, will prove just as effective as some of the more extensive systems suggested and will be adopted and used by a greater number of oil companies.

Presence of Static

The presence of static has been reported in a great many operations, such as loading and unloading tank cars, loading tank trucks, unloading tank trucks at service stations, loading and unloading boats at seaboard terminals, tank steaming, sand blasting, spray painting, barrel filling and many others. At one station spark and ignite gasoline when the drum over a wood floor to filling lines had built up enough static in the drum to cause a spark and ignite gasoline when the durm was brought in contact with the filling spout. This was remedied by placing a steel plate under the drum at filling point and grounding it to the filling spout. Some of the most prevalent causes of the building up of static electricity are non-metallic filling equipment such as rubber hose, metal line hose not equipped with metallic terminal, and filling spouts insulated from pipe lines by poor connections. Rust and paint are also responsible for poor connections in a great many cases.

Many patents have been filed in the United States Patent Office claiming to reduce static hazard. One inventor claims that charges accumulate on the surface of gasoline in a tank. These charges it is said are generated by the friction in the filling pipe and may cause a spark along the surface of the liquid to the side of the tank, which will ignite the vapor. He proposes a wire netting floating on the surface of the liquid and connected to the shell of the tank by metal chains. Another device called a "static controller" for tanks provides a number of vertical rods immersed in a tank. These rods connected to a pipe ring, which is grounded. It is generally agreed in the oil industry that the air and gasoline mixture in the upper part of a tank is too rich to be ignited by an electric spark and devices of this kind seem unnecessary for usual practice. An all-steel vapor-tight tank which has been electrically grounded by resting directly on moist earth, and all-metal connection interconnected or bonded is an extremely low fire hazard.

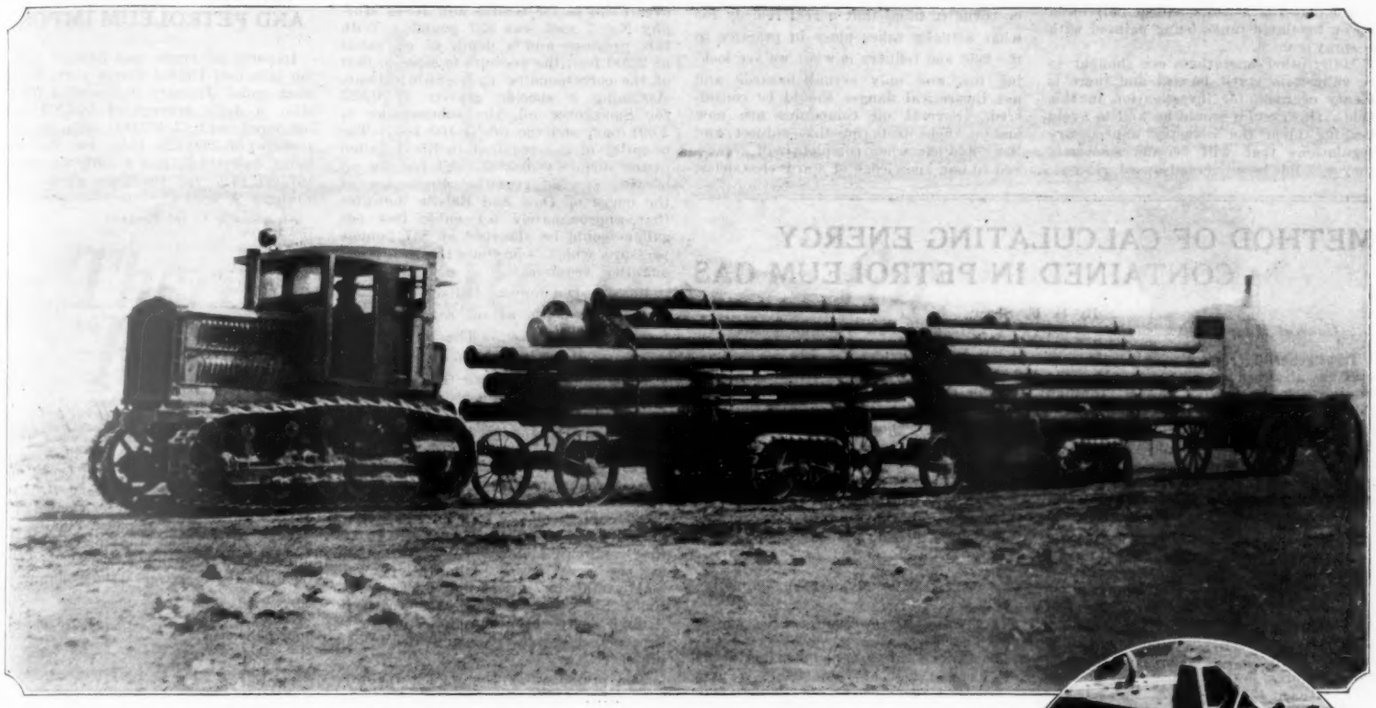
Drag Chains

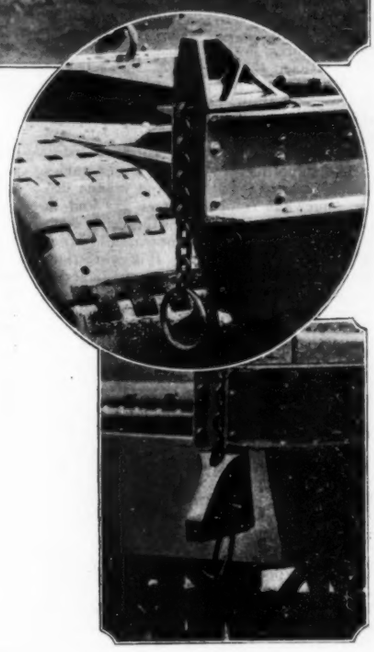
Tank trucks should be equipped with drag chains to act as bleeders to carry off any static that may have accumulated in the tank from causes such as the surge of the contents, the air friction of heavily-traveled thoroughfares and other causes. This recommendation is not in line with the findings of a committee in the East who state that drag chains are dangerous and inefficient, but who agree that bonding to loading and unloading points is necessary. Now if bonding is recommended, it is an admission that static exists in the tank truck and if the bleeding off can be accomplished by as simple a means as drag chains, this added precaution is well worth installing.

Tank steaming it would seem from experiments made recently can be a very dangerous operation if all lines are not connected and bonded to the tank, but if this bonding or grounding is intelligently done, no static can be built up and therefore there can be no danger.

Spray painting carries practically the same conditions, and the object being painted should be uninsulated and

*Before American Petroleum Institute, Los Angeles.





Easy to Load and Unload

Athey Rigid Box Section Bunks and Quick Acting Adjustable Chock Blocks Eliminate Loading and Unloading Troubles

Athey wagons are not only easy to haul but they have special features which make them extremely easy to operate.

The load rests on wide rigid bunks of box girder construction. These bunks are mounted rigidly on main frame of wagon and give firm and ample support to skid poles in loading. No possible chance of bunks turning during loading process or shifting under load in transit. The bunks are equipped with special anchors for loading and binding chains. Stake pockets are built in the ends of the bunk for wood stakes.

Chock blocks ride on and slide between the channels of the bunks. The block is secured in position on the bunk by means of a chain which passes through the block and is locked into position by chain dropping into notched portion of the block. It may be unlocked even under strain by a simple toss of the chain. During loading operation the chock block is dropped over the end of the bunk and hangs on the end of the chain. It cannot be lost.
On short hauls the above features make possible an additional load or two per day.

Send for further information.

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130 N. Wells St., Chicago, U. S. A.
Cable Address: "Trusswheel Chicago"
The Baldwin Locomotive Works, Foreign Representatives, Philadelphia, Pa.

ATHEY TRUSS WHEEL WAGON
IT BRIDGES THE SOFT SPOTS

grounded to moist earth. It has been found that 10,000 volts will quickly build up on insulated tanks being painted with a spray gun.

Many other operations are thought to be subject to static hazard and there is plenty of room for investigation in this field. However, it would be well to avoid heaping upon the industry unnecessary regulations that will become so costly they will not be universally used.

In future investigations the fact should be borne in mind that a real remedy for what actually takes place in practice in the field and refinery is what we are looking for, and only actual hazards and not theoretical danger should be considered. Several oil companies are now making field tests on this subject and their findings when complete will greatly add to our knowledge of static electricity.

METHOD OF CALCULATING ENERGY CONTAINED IN PETROLEUM GAS

By S. F. Shaw

*General Manager, Cia. Minera Nazareno y Catasillas, San Antonio, Texas**

It is generally recognized that the natural gas absorbed in petroleum plays the leading role in moving the oil through the sands to the well and supplies the energy that delivers the oil to the surface when the wells are flowing. It is the purpose of this paper to note the amount of oil that could be lifted by this gas if 100 per cent efficiency were obtained and the efficiencies actually obtained in the use of this gas.

An article in Mining and Metallurgy, stated that in a Wyoming field, with a pressure of 300 pounds per square inch, there would be absorbed 65 cubic feet of gas per barrel, or 1.55 cubic feet per gallon of oil. The writer does not know if data have been obtained, by experiment, for pressures beyond those indicated in this article, therefore, for the purpose of illustration, he has projected this curve to obtain figures for pressures greater than 300 pounds, although probably experiment will show that the extended lines is not quite correct.

The solubility of different gases varies under pressure; methane and ethane differ somewhat from a perfect gas and in precise calculations, where the exact composition of the gas is known, allowance would be necessary for this variation. Some of the gases of the paraffin series are changed to a liquid when certain pressures are reached, beyond which point they do not act as a gas. However, methane and ethane usually make up about 95 per cent of the total constituents of natural gas. Burrell makes the following statement: "I have found that at ordinary pressures and temperatures the oils absorbed from 15 to 25 per cent of their volume of the natural gas of Pittsburgh. Casinghead gases were absorbed to a greater extent, as much as 60 per cent. Under heavy pressures, of course, the solubility effect would be much greater."

Mills and Wells have prepared a table of initial pressures in various oil and gas fields at given depths; from this is calculated the average pressure per 100 feet of depth. It seems fair to assume that the initial pressure at all points in the same pool will be practically identical as the time during which the oil was accumulating would tend to equalize the pressure throughout a given pool. This equilibrium is disturbed as soon as a well has perforated the reservoir and gas has been allowed to escape. After several wells have been driven, the pressures throughout the pool will probably show considerable variation. In some cases, pressures above the equivalent hydrostatic pressure of 0.43 pounds per square inch per foot of depth are found, while in many others lower pressures obtain. In the main, a pressure of 0.35 to 0.40 pounds per square inch per foot of depth is rather usual, so in the following calculations 0.35 pounds per square inch per foot of depth will be used where initial pressures are not stated.

Let us assume that the oil contains 1.55 cubic feet of gas per gallon, although with pressures greater than 300 pounds a larger quantity would be absorbed. With an assumed 0.35-pound pressure per foot of depth, 300 pounds would correspond to a depth of oil sand of 857 feet and the corresponding hydrostatic column would be 691 feet. Assuming that the oil had a specific gravity of 0.835, as in the Second Wall Creek sand at Salt Creek, Wyo., the oil would stand at 828 feet above the bottom of the well, if there were no movement of the oil and gas. This would mean a submergence of 828 feet of oil, and a lift of 29 feet.

The work performed by a perfect gas in expanding from an initial pressure P to a lower pressure P′ is expressed by the following formula:

$$W = P'V' \text{ Napierian } \log \frac{P}{P'}$$

where V′ is the volume of the gas at pressure P′.

The work in foot-pounds, performed by 1 cubic foot of free gas at a pressure of P pounds in expanding from volume V to V′, is therefore:

$$W = P'V' \log_e \frac{P}{P'} \times 144$$

and if the discharge is assumed to be at atmospheric pressure at sea level this formula becomes:

$$W = 144 \times 14.7 \times 1 \times \log_e \frac{P}{P'}$$

Disregarding friction and other losses, the work performed in raising 1 gallon of water 1 foot is 8.33 pounds and the number of foot-pounds of work W′ required to lift 1 gallon of water L feet would be $8.33 \times L$.

The number of cubic feet of free gas Q at seal level required to raise 1 gallon of water a given number of feet L, as derived from the formula then becomes:

$$Q = \frac{W'}{W} = \frac{8.33 \times L}{144 \times 14.7 \times 1 \times \log_e \frac{P}{P'}}$$

$$= \frac{L}{254 \log_e \frac{P}{P'}}$$

To apply this formula to oil, it is necessary to substitute the weight of 1 gallon of the oil that is being raised 8.33. The same result is obtained by multiplying the quantity Q by the specific gravity of the oil. Some of the gases absorbed in the oil do not act as perfect gases, therefore the formula will not apply exactly to oil and natural gas, but the quantity of uncondensible gases at pressures encountered in oil wells is so great in comparison to the quantity of condensable gases that the formula will give a fair approximation of the facts. For a submergence of 828 feet and a lift of 29 feet, the formula shows that the quantity of gas required to raise the oil to the surface, if there were no losses for friction, slippage, etc., would be 0.030 cubic feet per gallon. But the quantity of gas contained in the oil is 1.55 cubic feet which is more than 51 times the amount required. In the article by Dow and Reistle, it was assumed that the quantity of gas that escapes per barrel of oil is 400 cubic feet, or 9.52 cubic feet per gallon; this is 317 times the theoretical amount required. Even assuming that the friction and other losses would amount to 50 per cent, 162 times as much gas is consumed as is required to lift the oil to the surface.

Let us take some examples from actual practice. Initial pressure in the Smackover Field in the George and Jones Murphy No. 1 well was 837 pounds. With this pressure and a depth of oil sands at 2,200 feet, the pressure is close to that of the corresponding hydrostatic column. Assuming a specific gravity of 0.922 for Smackover oil, the submergence is 2,091 feet, and the lift is 109 feet. The quantity of gas required to lift 1 gallon to the surface is 0.0987 cubic feet for oil of this specific gravity. Projection of the curve of Dow and Reistle indicates that approximately 5.1 cubic feet per gallon would be absorbed at 837 pounds pressure, which is 52 times the theoretical quantity required.

In the Dominguez Hill Field, California, the depth of oil sand of 4,200 feet might be taken. The author does not know the initial pressure, but if we assume 0.35 pounds per foot of depth, there would have been a pressure of 1,470 pounds per square inch. The specific gravity of Dominguez Hill oil at 31.5 degrees Baume is 0.868; and the submergence would therefore be 3,814 feet and lift would be 386 feet. The required quantity of gas for these conditions is 0.286 cubic feet per gallon. Projection of the Dow and Reistle curve indicates that approximately 400 cubic feet of gas per barrel, or 9.52 cubic feet per gallon, would be absorbed, which is 33 times the theoretical amount required. A high degree of accuracy is not to be expected, however, in using these high pressures.

The pressures at Dominguez Hill are now considerably reduced. T. E. Swigart, formerly engineer with the Bureau of Mines, has done considerable work in experimenting on the effect of back pressures in oil wells and gives an example of well G in the Dominguez Hill Field which has a depth of 4,223 feet, 3,715 of 3-inch tubing; 820 pounds pressure between casing and tubing, produces 3,790 bbls. per day and 428 cubic feet of gas per barrel of oil. The corresponding submergence of oil is 2,176 feet and the lift is 1,539 feet, the gas actually consumed is 10 cubic feet per gallon. For these conditions the quantity of gas required before allowing for friction, etc., is 1.320 cubic feet per gallon; the theoretical quantity of gas contained in the oil under a pressure of 820 pounds is 4.89 cubic feet per gallon, which is 3.7 times the theoretical quantity required, the quantity actually consumed, or 10 cubic feet per gallon, is 7.7 times the theoretical quantity required. The use of back pressures appears to be beneficial and the work of Mr. Swigart and the Shell company in carrying on these tests and making the results public is to be commended. There remains more work to be done in experimenting with tubing, etc., before a satisfactory percentage of efficiency will be reached.

Field	Depth of Oil Sand, Feet	Initial Pressure, Lb. per Sq. In.	Oil Submergence Corresponding to Initial Pressure, Feet	Lift, in Feet	Specific Gravity of Oil	Gas Required to Raise 1 Gal., Making no Allowance for Friction Loss, Cubic Feet	Absorbed Gas per Gallon of Oil Based on Projection of Dow and Reistle Curve, Cubic Feet	Ratio of Absorbed Gas to Quantity Theoretically Required to Raise Gal. of Oil.
Burbank	2,950	800	2,202	748	0.837	0.615	4.88	79
Caddo, La.	3,623	1,200	4,262	....	0.86	....	7.53	....
Caddo, La.	1,650	650	1,687	....	0,876	....	3.62	....
Calgary, Canada	3,740	1,200	4,000	....	0.692	....	7.53	....
Cotton Valley, La.	2,556	900	2,363	193	0.876	0.161	5.1	32
Cushing, Okla.	2,092	725	2,000	92	0.836	0.075	4.33	58
Dominguez Hill, Calif.	4,200	1,470	3,814	386	0,868	0,286	9.52	33
Dominguez Hill, Calif.	4,223	820	2,176	1,539	0.868	1.302	4.89	37
Mirando City Texas	1,944	635	1,581	363	0.925	0.378	3.8	10.5
Rosecrans, Calif.	4,125	1,444	3,994	131	0.833	0.094	9.0	9.6
Rosecrans, Calif.	4,125	800	2,212	1,913	0.833	1.561	4.88	3.1
Smackover, Ark.	2,200	900	2,091	109	0.922	0.0987	5.1	52
Wellington, Colo.	4,285	1,400	3,790	494	0.850	0.386	8.8	22.8
Westmoreland, Pa.	6,822	*3,600	8,294	1,472	....	....	...	....
Lost Soldier, Wyo.	2,700	1,000	2,643	57	0,867	0.046	6.2	134.8

*Estimated by the operators. Submergence for this well given for water.

The foregoing table gives data derived in the manner mentioned for several fields that are producing at the present time where initial pressures have been made public.

screwed one to another, each 9 meters long. The bore hole has a depth of 500 meters. A depth of 1,000 meters will be the maximum.

*Mining and Metallurgy.

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Imports of crude and refined oils at the principal United States ports for the week ended January 9 totaled 1,166,000 bbls., a daily average of 166,571 bbls., compared with 1,403,000 bbls. a daily average of 200,429 bbls. for the week ended January 2, and a daily average of 161,964 bbls. for the four weeks ended January 9.

At Atlantic Coast Ports—	
Baltimore	70,000
Boston	204,000
New York	338,000
Philadelphia	53,000
Others	158,000
Total	823,000
Daily average	117,571
At Gulf Coast Ports—	
Galveston district	228,000
Port Arthur and Sabine district	115,000
Total	343,000
Daily average	49,000
At All United States Ports—	
Total	1,166,000
Daily average	166,571
Daily average four weeks ended	161,964

Receipts of California crude and refined oil at Atlantic and Gulf Coast ports for the week ended January 9 totaled 901,000 bbls., a daily average of 128,714 bbls., against 496,000 bbls., a daily average of 70,857 bbls. for the week ended January 2, and a daily average of 89,714 bbls. for the four weeks ended January 9.

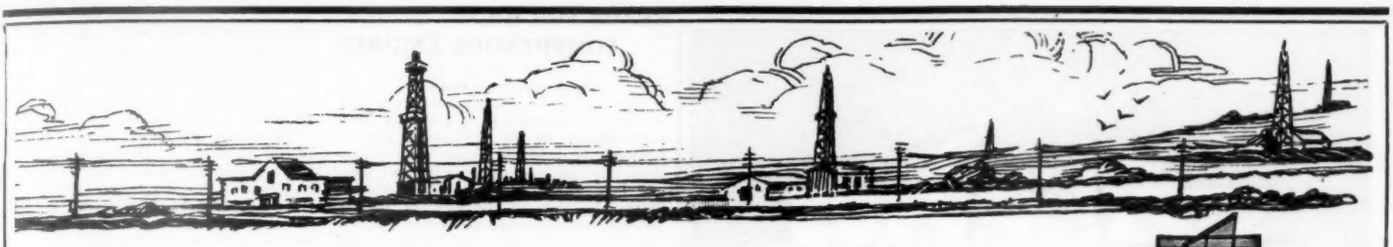
Baltimore	70,000
Boston	243,000
New York	344,000
Philadelphia	244,000
Total	901,000
Daily average	128,714
At Gulf Coast Ports—None.	
Total Atlantic and Gulf Coast ports	901,000
Daily average	128,714
Daily average four weeks ended	89,714

SYNDICATE INTERESTED IN EQUATORIAL OIL CO.

BRADFORD, Pa., Jan. 16.—Negotiations have been entered into between Bradford persons and a large oil syndicate to consider the disposal by the local parties of the operations of the Equatorial Oil Co. and 50,000 acres in South America. A. R. Johnson and Howard Yates have returned here from New York and Philadelphia where they have been conducting the operations. It is likely an operating contract may be entered into. Ten Bradford persons control 40 per cent of the stock in the Equatorial Oil Co.

DRILLING IN SWITZERLAND

Considerable interest is being shown in Switzerland in the oil prospecting being carried on in the vicinity of Tuggen, Canton of Schwyz. A 25-meter derrick has been erected, and boring operations are carried on by means of steel pipes



There are Substitutes for "International" Derricks – but they are only Substitutes.

With drilling expenses increasing daily, the operator of today must eliminate all wastes of production. To offset mounting drilling costs, the oil man must reduce the annual expense of maintenance.

But the operator cannot reduce costs by buying cheap equipment. Substitutes for efficient drilling and pumping rigs seldom satisfy. Despite the lower initial costs of wood, operators who have kept a cost record over a period of years and are able to compare it with a structural steel program know that wood is a failure and very expensive in the long run.

There are literally thousands of wooden derricks standing over wells in the oil fields of America today. Most of them have outlived their usefulness. They are eating tremendous holes in the profit. They must be replaced.

The International Derrick of galvanized structural steel is a genuine economy. A substantial saving over even a short period of years can be definitely proven. International Ideco Derricks and galvanized steel equipment minimize fire hazards and lower insurance rates. They represent 100% salvage should the well play out. They show an absurdly low yearly maintenance cost. Aren't they sufficient reasons for you to adopt an "Ideco" program?

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California National Supply Co., Distributors in California

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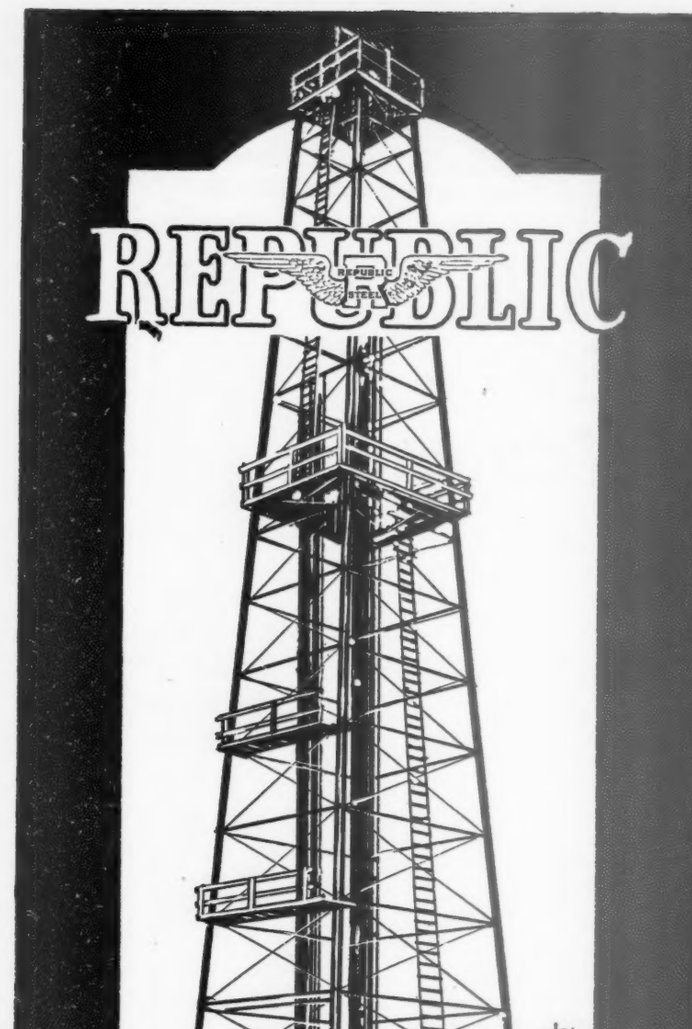

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New York	Pittsburgh	Chicago
	Denver	Birmingham

REPUBLIC STEEL

READY FOR HIGH COMPRESSION ENGINES

(Continued from Page 73)

as new models of engines are put on the market, which ought to be perfectly practical because on the average gasoline is suitable for slightly higher compression than was the case three years ago. Second, in a good many parts of the United States the bulk of the gasoline sold is well above the average anti-knock quality, throughout California, for instance, and it would seem to me very easy to enter the thin end of the wedge by supplying higher compression cars for such territories.

Engine Operation

I said that there were some matters of detail which I would come back to later that affect engine economy, which are well known and yet which are not being given very serious consideration. One thing is engine operating temperatures. The carburetor on most cars is so adjusted that after the engine is started it will operate smoothly within a few minutes. If engines never go co'der than say 150 degrees Fahrenheit it would be possible to use much leaner mixtures than are now employed. The ideal working temperature, from the economy viewpoint, is 200 degrees Fahrenheit or more, yet even in summer nearly all engines run with cooling water around 160 degrees Fahrenheit, and in winter very much colder than that. Certainly there are a few cars so arranged that by automatic means the engines warm up quickly and are maintained at nearly constant temperature, but these are a small minority. Even assuming the use of properly controlled temperatures and higher temperatures than are now normal, there remains the period between starting a co'd engine and its warming up. There are a few cars provided with a manual control whereby the mixture can be enriched without the use of the choke. There are a few others in which special means are taken to supply heat to the intake system very promptly, but compared with the total production such machines are a negligible quantity. Considerably more than half the cars built require no more serious alteration than a redesigned intake manifold to increase the miles per gallon 20 per cent.

It has been my experience that a majority of executives in the automobile industry have just as bad a misconception of the petroleum industry as the average citizen. Having spent most of my working life in other fields, I have, since becoming an oil man, had the opportunity of comparing the mental attitude of this industry with others and when one knows the facts it is obvious that no industry has ever been so farsighted as the oil industry, and none has ever spent nearly so high a proportion of its total earnings on the minimizing of waste or the improvement of economy. Compare for a moment the rubber industry in which the serious growing of plantation rubber only began after a shortage of supply was threatening to strangle the industry almost at its birth, with the world wide oil prospecting that the petroleum industry of every nation has carried on. The oil industry has never for an instant lost sight of its ideal, which is, to produce from a barrel of crude 100 per cent of useful products. That is, of course, unattainable, but the losses today are nothing to what they were even 10 years ago and will probably be reduced even more in the next 10 years to come. Furthermore, the industry has always fostered economy in the utilization of its products. The more economical an oil burning furnace the more furnaces will be used and the greater the demand for furnace oil.

Room for Improvement

The automobile industry has followed a similar road insofar as its manufacturing is concerned, but it has not been conspicuous for foresight of fluctuations in the demand, while the used car problem and the high sales cost show that there is still plenty of room for improvement in the internal economics of the business. It may be granted that the cost of operating an automobile is not as great as it was some years ago, but this is due mainly to the fact that the average weight and size has decreased and also, in no small measure, to the enormous improvements in rubber manufacturing which has immensely reduced tire costs in terms of miles per dollar.

Of course, the public is thus far completely ignorant of the situation, and if the automobile industry waits till there is a public demand before beginning to supply, then nothing is likely to happen until the increased cost of gasoline is beginning to retard the sale of automobiles. Hitherto the automobile industry has anticipated the demand, for instance, the self-starter. The firms who first introduced such big advances, in most cases, reaped the benefit. No large producer of automobiles has ever yet made serious use of economical operation as a sales argument, probably from the belief that the American public is not greatly interested in economy. It should be remembered, however, that while this is true in one sense, it is totally untrue in another.

We, as a nation, are supposed to be a wasteful people, and yet our position of preeminence and domination in industry is due to nothing but the fact that we utilize our man power far more economically than any other race on earth. Because our people strive always for the highest possible efficiency, which means economy in their business, they are able to afford a style of living which appears lavish by Old World standards. We have earned the right to our high standard of living, thus whether a man is or is not interested in the economical operation of his personal car depends upon whether he regards that car as an adjunct to his efficiency or as a luxurious addition to his private life. As to his attitude regarding the motor truck, there cannot be a second's question as to which viewpoint he would take.

STATUS OF OIL BURNERS IN HEATING INDUSTRY

(Continued from Page 73)

tain a constant proportion of oil to air mixture, with varying drafts caused by changing outside atmospheric conditions. There are several burners, however, of this type that have made some very successful developments in the past year, so that it may be possible in the near future to increase the efficiency of this type of burner. The method of igniting oil vapors is also a serious consideration in the efficiency of the oil burner.

Most burners today are lighted either manually, electrically or with a gas pilot.

Selling Methods

The first oil burners employed in domestic heating were sold, installed and adjusted by men outside of the regular established heating trade. In many instances this caused friction between the oil burner dealer and the heating contractor as each blamed the other for any trouble in the heating system. I believe this method is undergoing a change, which is for the better. A great many oil burners are sold today through dealers who merely act as jobbers, and in turn sell the house owner through the regularly established heating trade. This, I am sure, is one of the foremost steps in the development of the oil burner industry. Another hopeful sign is the fact that during the past year several companies, having a high standing in financial and manufacturing circles, have engaged in the manufacture and distribution of oil burners. One of these companies is building and selling its burner only through its own establish branch offices and is insisting that the burners so sold must be installed by reputable heating contractors. This is giving the oil burner a new standing in the heating industry.

The advertising of some oil burner companies has been in a degree rather misleading, in that they have painted an overly bright picture of the economy of using oil as fuel. This has led to the installation of a great many oil burners in places where they were sure to cause disappointment to the user. This has not been so general with the more repu-

table burner manufacturers as it has been with those who have built burners to sell instead of to render service.

The curve, based on the increase of total number of burners installed in the year 1924, shows a certain rapid ascent as compared with 1923, while the curve, based on the increase of burners sold in 1925 over that of 1924, does not show the same rise. In other words, while there are more burners being sold this year than last, the percentage of increase of 1925 over 1924 is not as great as the increase in 1924 over the number installed in 1923. This is only natural and does not indicate that the point of saturation is being reached, but it does indicate that the burners are being better sold and that more successful results will be obtained by the burners installed in the year 1925 than of previous years.

Effect of Fuels

With regard to the methods of distribution and installation of oil burners I have made considerable study and investigation this winter in several different centers in the United States and find that those burner manufacturers who do not have an efficient service department in each of the large cities where their burners are being extensively installed, are having a great many dissatisfied users. This has a lowering effect on the status of the oil burner in the heating industry in those localities.

Much has been said about fuels, but so far very little has been said about the effect of fuels on the metal of which the heating boilers and furnaces are constructed. I have made an investigation covering several years along this particular line and have arrived at the conclusion that the burning of oil within vast iron or steel boilers and furnaces has no detrimental effect on this metal so long as the boilers have the proper amount of water within them and the furnaces have the proper amount of air circulating through them.

When the oil burner is so developed that it gives efficient service, safety and durability and is sold with the understanding that its operation may cost more than solid fuel:

When boilers and furnaces are designed to give a high overall efficiency when equipped with an oil burner;

When the oil burner manufacturers have instructed the heating and plumbing contractors in the ordinary care of an oil burner;

When the oil burner salesmen are educated by the manufacturers to sell oil burners only where they rightfully belong—then the public will be willing to pay for its convenience regardless of the price of oil and it will take its rightful place in the heating industry.

AUTOMATIC CONTROL IN WELL DRILLING

(Continued from Page 74)

shows an estimate of cost of power with steam drive prepared by their engineering department.

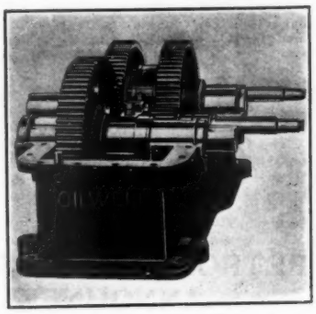
Drilling Record

The wells drilled by the Chanslor-Canfield Midway Oil Co. were started with 20-inch hole for 900 feet depth on the Torrance wells and 18-inch hole for 600 feet depth on the del Amo wells. The wells were finished 7¾-inch. The drilling varied from sand and boulder formation to shales and shell formations.

The wells drilled by the Gulf Production Co. started with 16-inch hole and finished with 4½-inch liner. The formations drilled through consisted of clay, sand, gumbo, boulders and heavy layers of rock. Rock bits were used for drilling through some of the rock formations.

It will be noted from these tables that the Chanslor-Canfield Midway Oil Co drilled two wells at Torrance at an average depth of 3,703 feet and an average cost of power of 28.8 cents per foot, (power rate $0.01617), and four wells at del Amo at an average depth of 3,599 feet and an average cost of power of 9.5 cents per foot, (power rate $0.009504). The Gulf Production Co. drilled five wells at an average depth of 3,451 feet and an average cost of power of 20.4 cents per foot, (power cost $0.02). Records of several wells showed that one-third of the power consumed was used by the slush pumps. It will also be noted that the Gulf's estimate of steam power cost with fuel oil at $1.50 per barrel was 55.5 cents per foot, or over double the electric power cost.

Probably the best way to summarize the results obtained in the field is to quote from a recent statement of J. J. Russell, chief engineer of the Gulf Production Co. He states that "in my opinion, the Hild universal drive is the most perfect design of drilling equipment that has ever been manufactured. It is in



Gear Case With Top Removed

reality a scientific piece of apparatus, and it has placed the drilling of wells on a scientific basis. There is no question but that it requires a scientific and practical knowledge of drilling operations, in order to make use of the flexibility and practicability which make up the operating features and characteristics of the machine.

Duty of Driller

"The driller must be one who recognizes immediately the changes in the formation that is being drilled and upon recognition he must immediately change his control so as to speed up or slow down the rate of speed with which he is feeding the drill stem. No two formations drill alike, that is, can be penetrated with the same degree of rotation or weight of drill stem, and the driller cannot set his drill stem to feed at a certain definite number of feet per minute, or inches per hour, and forget about it, if he is to take full advantage of the equipment at hand.

"We found the flexibility of the Hild drive to be such that it was possible to regulate the feed of the drill stem or the weight of the drill bit on bottom to any desired speed or weight, and once fixed by the driller it would stay fixed. The human equation in the form of the driller was eliminated after the motors were once set. No dependency was placed on him to feed the bit manually and he was not under fatigue stress. However, if that driller does not recognize the formation and know and take advantage of the machine's capabilities, there is no use in having them.

"Assuming that the driller does take advantage of the operating characteristics and knows the various formations, I think that in comparison with any type of hand fed drilling equipment, that a straighter hole can be made, and that there will be less wear and maintenance to all drilling equipment, including slush pumps, that as fast time can be made, that more power and flexibility is available, with the Hild drive."

It is the opinion of the operators of the two large producing companies who have pioneered this device that it is flexible, has plenty of power, functions perfectly as an automatic device, and that it will drill as quickly as other devices and with a lower power cost. The automatic feature appears to obtain a straighter hole and to minimize twistoffs with resulting fishing jobs. The recording charts give the superintendent's office a complete record of all drilling operations.

This apparatus has been developed and placed on a successful operating basis through the combined efforts of the manufacturers and operators mentioned. Too much credit cannot be given to the Chanslor-Canfield Midway Oil Co. who

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for cracking processes

The functions of valves in the various oil refining processes—*particularly cracking* are so closely associated with results obtained and operating costs that the matter of valve selection is of vital importance.

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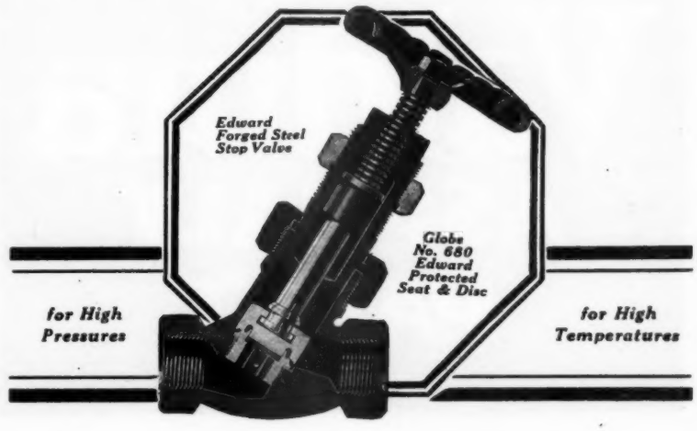

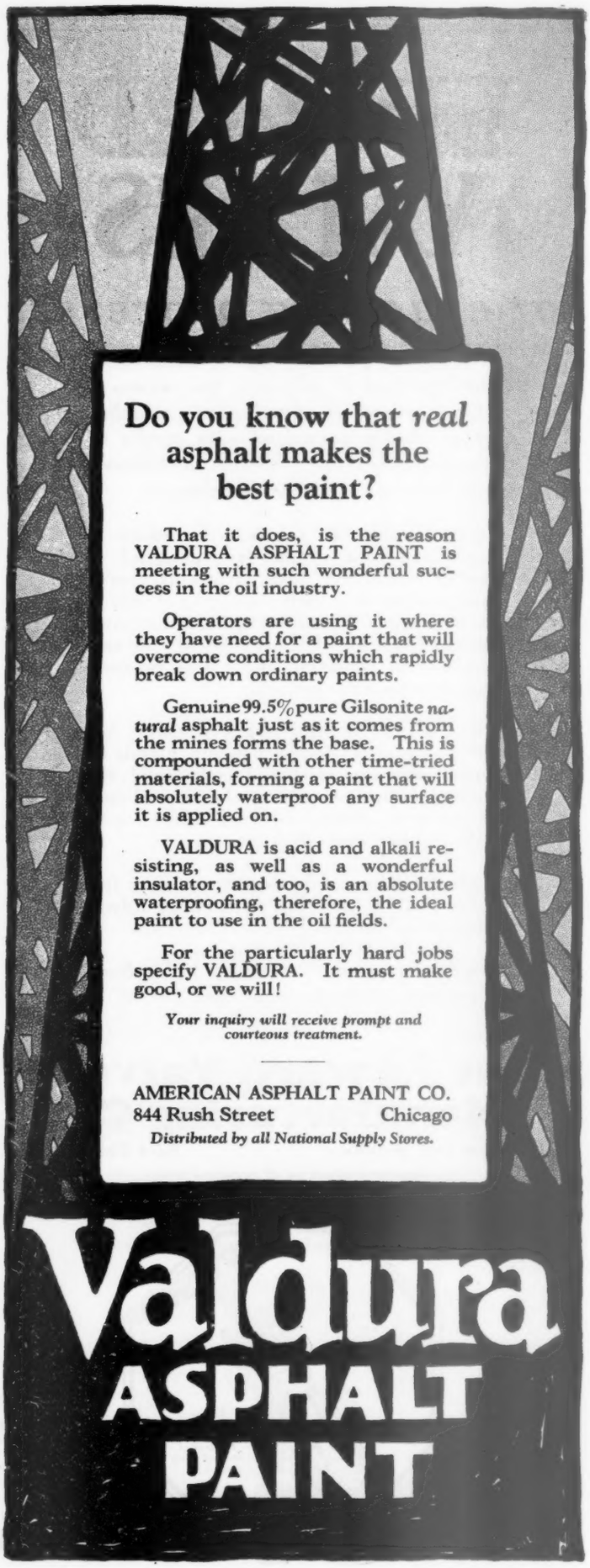
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pioneered this device, the Gulf Production Co., and the field staffs of both companies for the vital interest they have shown in conducting the field tests. The high grade engineering and operating staffs of these companies are in line with the present trend in the oil industry to operate along scientific lines and will no doubt materially assist in other ways toward progress in this industry.

BACK FILLER WITH FULL CIRCLE SWING

A radical departure in back-filler construction is embodied in the new utility back-filler just announced by the Buckeye Traction Ditcher Co., of Findlay, Ohio. Built over the "full revolving" principle it is said to have many advantages over equipment of this class heretofore offered and its range of usefulness is extended accordingly.

The full circle swing permits a "reachability" new to this type of equipment. It is readily adaptable to other duties about the job, such as loading or unloading pipe from trucks, lowering them into place or, with a clam shell bucket, for handling materials. At the conclusion of the job, too, it is used for "cleaning up."

The revolving base consists of a heavily ribbed solid electric steel casting. This provides a rigid foundation for the power unit and the main machine assembly. Embodied in the base are steel annealed rollers operating on the machined face of the ring gear. The roller path is 4 feet in diameter and the rotating drive is through cup-and-cone reversing clutch controlled by a hand lever at the operator's platform.

The boom is of standard lattice type construction, 10 by 12 inches square at the center. The full boom length is 29 feet with an added 4-foot adjustable box channel extension, which gives a maximum boom length of 33 feet. A unique feature of this unit is an 8 foot removable center section which permits a short boom length of 21 feet. The elevation of the boom is controlled by power through a worm-and-gear mechanism.

PETROLEUM DIVISION OF A. I. M. E. ANNOUNCES TENTATIVE PROGRAM

The tentative program of the Petroleum Division, to be part of the annual meeting of the American Institute of Mining and Metallurgical Engineers in New York, February 15-18, is as follows:

MONDAY, FEBRUARY 15

General Session

10 A. M.—F. Julius Fohs, Chairman.

World Production in 1925: E. L. DeGolyer, Petroleum Geologist, New York City.

Taxation and the Oil Industry: A. D. Brokaw, Geologist, New York City.

Technologic Progress in the Oil Industry: F. Julius Fohs, Consulting Oil Geologist, New York City.

Business Program.

Production Engineering Symposium

2 P. M.—F. Julius Fohs, Chairman.

Well Spacing: H. C. O. Clarke, Pure Oil Co., Mexia, Texas.

Discussion by Frank M. Brewster, Petroleum Engineer, Washington, D. C.

Core Drilling Technology:

1. Diamond Drills. D. J. Longyear, President, E. J. Longyear Co., Minneapolis, Minn.
2. Special Type Drills. J. E. Elliott, President, Elliott Core Drilling Co., Los Angeles, Calif.
3. Basket Cores. E. Call Brown, California Petroleum Co., Los Angeles, Calif.

Improvements in Production Methods: F. B. Tough, General Superintendent, Humphreys Corp., Houston, Texas.

Refinery Symposium*

2 P. M.—Drs. T. G. Delbridge and C. H. Osmond, Chairmen. Speakers to be announced.

Comparison of Principal Cracking Processes:

1. Economic Incidence of Cracking.

Basic Changes in Refining Processes:

Special Discussions:

1. Distillation by Pipe Stills.
2. Fractionation.
3. Treating.
4. Wax Separation.
5. Economic Effect of Basic Changes in Refinery Operation.

New Gasolines and Anti-Knock Compounds.

TUESDAY, FEBRUARY 16

Transportation Symposium

10 A. M.—Douglas S. Bushnell, Chairman.

Transportation of Petroleum. Charles Fitzgerald, General Superintendent, Pure Oil Pipe Line Co., Dallas, Tex.

Evaporation Losses in Storage and Transportation. J. H. Wiggins, Chicago Bridge & Iron Works, Chicago, Ill.

Investigations of Pressure Conditions in Pipe Lines. W. D. Pomeroy, General Manager, The Goulds Manufacturing Co., Seneca Falls, N. Y.

Corrosion of Pipe Lines and Protective Covering. F. Ray McGrew, Vice President, Standard Pipe Line Co., Shreveport, La.

Production Symposium

Dr. James H. Gardner, Chairman.

Review of American Production. F. Julius Fohs.

California. G. C. Gester, Chief Geologist, Standard Oil of California, San Francisco, Calif.

Kansas-Oklahoma. Burr McWhirt, Roxana Petroleum Corp., Tulsa, Okla.

Gulf Coast. Louis Freedman, Marland Oil Co., Houston, Texas.

Texas Outside Gulf Coast. Dr. F. H. Lahee, Chief Geologist, Sun Oil Co., Dallas, Texas.

Arkansas and Louisiana. D. T. Ring, Consulting Geologist, El Dorado, Ark.

Rocky Mountain District. Fred E. Wood, Midwest Refining Co., Casper, Wyo.

Appalachian Fields. George Turnbull, Editor, Derrick Publishing Co., Oil City, Pa.

Mississippi Valley Fields. Gail F. Moulton, Illinois Geological Survey, Urbana, Ill.

Alaska. P. S. Smith, Geologist, U. S. Geological Survey, Washington, D. C.

Mexico. V. R. Garfias, Manager, Foreign Oil Department, H. L. Doherty & Co., New York City.

Russia. Basil B. Zavoico, Sinclair Oil Co., Enid, Okla.

Near East. E. L. Porch, Jr., Humphreys Corp., New York City.

Venezuela and West Indies. Edwin B. Hopkins, Consulting Geologist, New York City.

Colombia and Peru. L. G. Huntley, Consulting Geologist, Pittsburgh, Pa.

Argentine. Dr. Jose M. Sobral, Argentine, S. A.

Symposium of Petroleum Economics

2 P. M.—F. Julius Fohs, Chairman.

Petroleum Statistics and the Economic Situation. Arthur Knapp, Petroleum Engineer, United Gas Improvement Co., Philadelphia, Pa., and Joseph E. Pogue, Consulting Engineer, New York City.

Forecasting Petroleum Production. J. Melville Sands, Consulting Geologist, Phillips Petroleum Co., Bartlesville, Okla., and C. Campbell Osborn, Chief Economist, Marland Oil Co., Ponca City, Okla.

Discussion by Joseph E. Pogue.

The Trend of Prices in the Petroleum Industry. Joseph E. Pogue, Consulting Engineer, New York City.

The Community Lease and its Economic Aspects and Effect on the Oil Industry. Fay Wright, Superior Oil Co., Los Angeles, Calif.

*This session will be continued on February 16.

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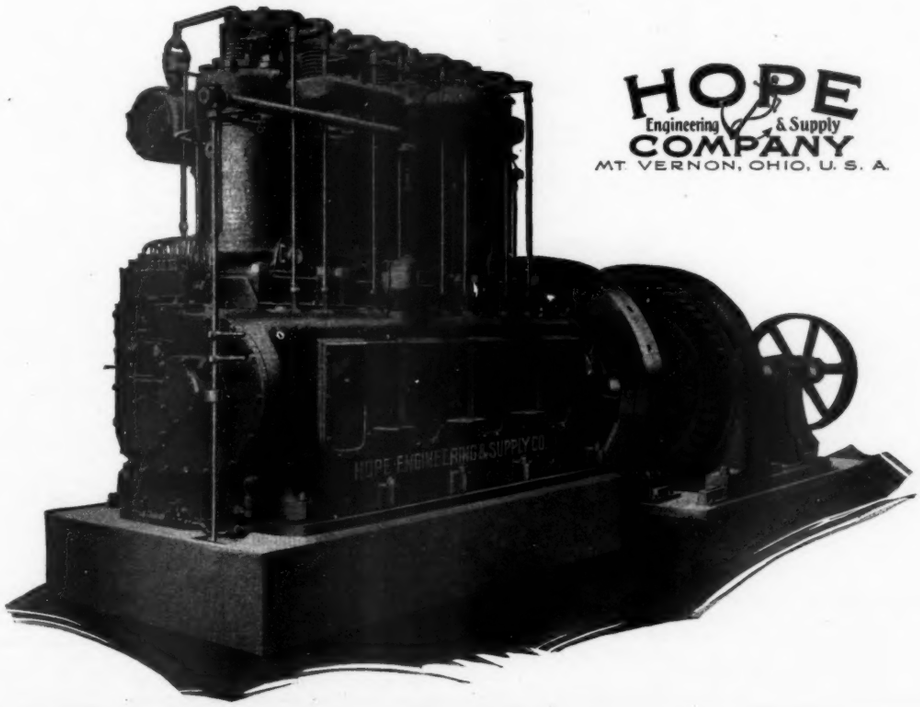

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←BARSCO "Bloom" Pattern, punched from *forged steel*, not welded. The metal in BARSCO shoes has a tensile strength of 90,000 to 110,000 pounds per square inch. In all standard and intermediate sizes.

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METHODS IN EXTENDING CREDIT TO OIL INDUSTRY'S CUSTOMERS

By F. H. Bowman*
Pure Oil Co.

The Credit Department tries to prevent as many losses as possible. However, too small a percentage of losses shows an unbalanced condition and lack of good judgment. A Credit Department may bring their losses to such a point, by continually disapproving orders, that the losses in bad debts will amount to such an infinitesmal percentage of the sales that they will not be noticed. Nevertheless, this subnormal condition will reflect in the general overhead through the additional cost in sales expense to such an extent that this is impractical. This additional sales cost is brought about by extra trips and other expenses necessary to find customers who will pass the muster of such a credit department. A credit department must take legitimate chances and "play ball" at all times with the sales department.

As credit is the basis for the greatest percentage of business today, a credit department must function entirely in accord with the policy of its company at the time the matter of credit extension is broached. For instance, when the sales department is exceedingly anxious to move goods, the credit department must dig very deeply in order to find some basis for allowing the goods to be shipped on open terms.

The salesman is the first point of contact with the customer. Of course, the best source of information is the buyer himself. The financial statement is commonly offered as a basis, and may nearly always be obtained if requested in the right way. The approximate amount of credit which will be required if the customer purchases his maximum requirements from the buyer should be specified so terms may be fixed to meet these requirements and keep the buyer within the proper credit limit.

Banking connections should be specified and trade references given by the buyer. A call should be made by the salesman on the banker. There, in addition to general information, he may obtain trade references, if he will approach the banker in the proper manner.

Any observing salesman may also obtain additional trade reference by glancing at trade signs, or trade marked goods, around the place of business. All this information should accompany the salesman's report on a new customer.

When this report is received by the credit department, inquiries should be sent out to a bank other than a customer's: to both commercial agencies and then to each trade reference listed.

The reason for inquiry from a bank other than the customer's is because, especially in small communities, a banker financing a concern will be prejudiced as to the customer's net worth. In a great many cases he will be over anxious to see that his client obtains a liberal line of credit so that the bank's obligations may be liquidated quickly at any time by transferring the indebtedness from the bank to his various creditors.

The reason for using both commercial agencies is because very often there is a difference in rating or idea of net worth. This will often disclose some discrepancy which will show up in other sources of information.

The trade references obtained by the salesman, disclose through the exchange of ledger information, the line of credit that the customer is now being extended and how he is paying his bills. Any favoritism or crookedness in paying some creditors at the expense of others will show up if your trade reference list is adequate. Of course, the ideal way to handle this would be for the oil industry to have a clearing house and then transcribe all ledger experience to each member of the industry who is interested in any common customer.

For various reasons it does not seem feasible for this industry to operate such a clearing house, but the Interchange Bureau of the National Association of Credit Men has such a plan in operation in most other industries.

Wherever possible a financial statement should be obtained from a customer. It is very desirable if the line of credit runs into real figures, to also obtain an operating statement.

After the information is assembled the analysis begins. The credit department is fairly certain whether the products purchased are for resale or consumption. The analysis in each case is different. If the customer is going to resell, the turnover and how it is to be resold, serves as a basis for credit, or a real analysis of an operating statement.

In case of the consuming customer, his financial statement is generally the basis for extending a line. Credit limits are based on integrity and net worth.

The net worth is obtained by scrutinizing a financial statement, throwing out all fictitious assets or assets of indeterminable value deflating physical assets to practically a resale basis, and deducting all liabilities, except capital stock.

In the oil industry there is a large volume of business passing through brokers' hands. Some companies refuse this business. However, they are a part of the business and credit extension to this class of trade should be based on their ability to pay and their intention to repudiate or stand by contracts according to the turn of the market. Terms of sale enter into the credit limit on the basis of the ratio of time to the amount of credit required. In other words, a sight draft customer might be placed on open terms, provided he would pay his bills each week, whereas, if he demanded 30-day terms or four weeks' business, he would be entirely out of line for an extension of credit.

The financial statement requested should be very simple in form, as the customers buying from three or 10 carloads per month are usually the ones to whom this financial statement will be sent. As a rule such customers do not keep an elaborate set of books and complicated forms of financial statements only worry them. Larger customers generally publish their statements.

Regardless of the fact that a company does not show a very large net worth or have a big showing in fixed assets, the earnings will reflect efficient or inefficient operations in the use of limited capital, provided an operating statement may be obtained. Whenever possible it is desirable to have two consecutive years comparison as this will very clearly indicate the trend of operations.

It is essential that adequate insurance be carried; especially in a business with a small capital doing a large volume of profitable business, it is generally advisable to carry "Use and Occupancy" insurance.

Up to the point of setting a credit limit, all companies can very easily have a standard procedure; but when the time comes to analyze the information in hand then the policy of the selling company or the individuality of the credit department manager takes hold. This clearing house idea or interchange bureau will solve a great many, if not all, our problems in finding a common line of credit to extend a common customer.

*Before American Petroleum Institute, Los Angeles.

GASOLINE RAIL CAR IN ALASKA

Traffic problems on the Alaska railway have resulted in shipment of a gasoline rail motor car for the Alaska Railroad. It will proceed to Anchorage, where it is to be used for short distance runs. The car is a combination baggage and passenger vehicle, and is specially equipped with insulated walls, roof and floor, as well as storm sashes.

FIRE PROTECTION AND PREVENTION IN PETROLEUM INDUSTRY PRACTICE

By Charles H. Haupt
*Standard Oil Co. of New Jersey**

The contrast at the present time in the enormous quantities of petroleum products handled and the relatively negligible number of fires, with the comparatively small quantities of petroleum products handled in the earlier days, and the relatively great destruction of 15 to 25 years ago, points conclusively to vast improvement made by the industry along the lines of fire prevention and protection.

The number of fires in above-ground oil storage tanks is astonishingly small, and that fire spread and consequent damage to adjoining property, where reasonable precautions are observed, are practically negligible.

Not many years ago there was no systematic design in laying out petroleum properties, and no systematic inspection of existing installations to uncover possible fire hazards. There was very little realization of the necessary safeguards required. Materials chosen for construction purposes were often unsuitable; indeed, flammable materials were common. It is worth while, therefore, to study in some detail the factors which we feel have contributed most prominently to the present safe handling and storage of crude oil and its products on the vast scale obtaining today.

Design

In our older installations, tanks were spaced so close to each other that the spread of fire from one to another was frequent, resulting in some cases in serious fires before it was possible to get fire fighting facilities into play. Tankage as laid out today is usually spaced systematically, with reasonable distances between shells, allowing frequently for fire banks and pipe alleyways, and permitting the efficient use of fire fighting facilities. Experience has shown that with such construction fires are easily confined to the tank of origin.

Wooden roofs on tanks were in the early days almost universal. From wooden roofs the industry went to steel roofs, with a resultant decrease in the fire record, and today vapor-tight steel roof construction for the more highly volatile oils and light crudes is considered the best practice. Statistics show this type of tankage to be the safest yet devised. Tanks with welded roof and bottom are in frequent use, and have manifest advantages as regards tightness. The marked trend of the times is toward all-steel tank construction.

Proper roof accessories, especially those approved by the underwriters, are also a vital factor in making tankage safe. Vents should be properly screened, manhole openings should be tight, gauge holes properly closed, and all openings which might permit the propagation of flame should be sealed. The endeavor today is to have such accessories meet the above standards, although perfection has not yet been attained. There are also certain devices on the market whose aim is to protect wooden roof tankage against lightning. The results obtained by the use of this equipment should be carefully noted, it being too early to pass judgment on these special devices.

The design of the shell of the tank itself is receiving much greater consideration than formerly. Tanks are now designed carefully, with regard to the strength of joints, using suitable materials and a reasonable factor of safety throughout.

For the handling of casinghead gasoline and light products spherical pressure tanks are being installed in certain instances. For the storage of commercial gasoline and like products, vapor-tight tanks, capable of withstanding roof pressures up to 15 inches of water, are being experimented with, as are also tanks connected to gas holders and gas bags. Floating roofs of various types, to eliminate all gas space, are also being constructed.

*Before American Petroleum Institute, Los Angeles.

Recently there has been considerable discussion regarding the safety attainable from a fire hazard standpoint by the installation of underground oil storage tanks, particularly at bulk marketing stations. Many municipalities have enacted ordinances prohibiting the construction of steel gas-tight horizontal or vertical above-ground storage tanks of considerable size and have required the industry to install underground tankage in an effort to minimize the apparent fire hazard. Large underground tanks considered as containers for the storage of petroleum products have many disadvantages. Among these may be mentioned the materially increased cost of installation, the fact that repairs are difficult and often impossible to make, the liability of serious leakage which would not be detected as quickly as if the containers were above ground, the fact that topographical and soil conditions often preclude entirely such installations.

Underground tankage has been the only means that some municipalities can devise to remedy the evils of poor construction, apparently for the sole reason that it is out of sight. This reminds us forcibly of the habit of the ostrich, who, when he puts his head in the sand imagines that he is safe.

In the early days of the industry, fire banks were very rare and little attention given to their proper design, construction or maintenance. Fire banks are in some cases an important preventive measure, and in general serve two purposes; one being to take care of boilovers from burning tanks, and the other to hold the contents of the container in case of rupture of the tank.

Checking Boilover

From the experiments conducted by M. H. H. Hall of the Standard Oil Co. of California, it appears that deflecting plates secured in the top of a bank and sloping inward, or, in lieu of this, the incorporation of this feature in the original design, has a very important effect in turning back boilover waves. Unquestionably the data available from this experimental work will affect future practice.

Regarding the use of fire banks for tankage containing products which do not present the boilover hazard, such as ordinary gasoline and kerosene stocks, it is not feasible to make a ruling which would cover all conditions. The governing factors are, location of the tankage with respect to adjacent combustible construction, the topography, the nature and specification of the product stored, the type of fire extinguishing equipment available in case of fire, the nearness of flowing streams, etc. For conditions where these factors demand protection, a dyke or bank is of material assistance as a fire preventive adjunct.

The question of adequate drainage facilities for large refinery terminals and other locations where vast stocks of petroleum are stored, merits special consideration. In many cases sewers are not practicable due to topography and general location of tankage or reservoirs. In other cases, sewers can be installed draining fire bank enclosures and usually discharging through adequate separators or settling chambers. Where such construction is used, often the expenditures required for fire bank construction can be materially reduced. However, experience shows that a drainage system is not a necessity from a fire protection standpoint, except in larger and more complicated installations, usually in connection with refineries.

Refinery Design

A refinery of today, designed along modern lines, is systematically planned, with zoning of the plant to provide for the different operations, and providing proper avenues of communication. Distillation stills, while confined exclusively to the refining end of the industry, are an essential item. It is important that careful and proper design be employed both in the form of strength of vessel used, in the choice of suitable materials, and in the application of proper accessories. The early stills were often placed inside buildings, where escaping oil vapors frequently resulted in bad fires. Great congestion often prevailed. Today practice dictates that stills be built in the open, with brick, concrete and steel settings; that they be properly spaced; that roadways or fire breaks be maintained between batteries, and that the ground space around a battery of stills be divided into small units by the use of fire walls.

Regarding modern cracking equipment, proper design has made the fire hazard almost negligible. Adequate factors of safety are maintained. Allowance is made for the reduction in strength of materials due to high temperature. Additional thickness of material is provided for in designs to cover corrosion over a reasonable period. Also in this service special steels and alloys are used to minimize any hazard. Seamless drawn pipe, in place of lap welded pipe, is being extensively used. Such apparatus is usually equipped with reliable recording and indicating gauges and thermometers which are essential to safe operation. In many cases remote control of important valves is carried out in the design to reduce the fire hazard of such equipment.

Refinery construction in general is built today of fire-resisting materials. Equipment including pumps, power plant apparatus, boilers, engines, generators, exhausters and a multitude of other machinery entering into the construction of a modern refinery, is generally very carefully selected with regard to its suitability for the service.

Vital agencies in plant operation from the fire protection standpoint, such as power and boiler houses, water and foam pumps, are located where least exposed to hazard. Oil piping and control valves are so arranged as to permit of easy and ready transfer of petroleum stocks from one point to another in case of serious fire.

Transportation of petroleum products is today attended with a remarkably small fire risk, as records prove, due to the underlying improvement in design not only of the container but in the methods used in handling, storing and shipping.

Maintenance

Considering the second essential, namely, maintenance, it is believed that in addition to the regular forces employed in a large plant there should be an inspection force, outside the jurisdiction of the plant management.

Where insurance is carried many of the larger insurance companies are organized to make such inspections. In the company with which the writer is affiliated this work is done by an organization within the company itself, over which the plant management has no jurisdiction.

The engineering department of this company has a safety inspection division. The function of this division is to make regular systematic inspection of fire fighting facilities and other equipment. Regular inspection covers all fire fighting facilities, including foam, high pressure water, steam, etc. In addition to inspecting the general fire protection facilities, attention is also directed to general condition of tankage, vent screens, power lines, fire banks, general building construction and other conditions of a like nature.

All defects are repaired at the time of inspection.

This safety inspection force also covers the inspection of cracking equipment, which is made three times a year and constitutes in general a thorough mechanical and physical test of all parts of the equipment.

The inspector of cracking equipment has the authority to order the immediate renewal of any part which he deems unsafe, or to shut down the equipment, and such is obligatory upon the plant management.

In this work of inspection and insuring proper maintenance, records are kept of rates of corrosion of equipment, thus giving valuable data for prognosticating the life of similar equipment and giving ample notice of renewal so that parts or material may be ordered in advance and repairs made with a minimum loss of time.

Careful Operation

Our third essential—proper care in all operations where flammable materials are handled — deals largely with the human element.

The selection of careful men to have charge of operations and the proper instruction of the personnel of the plant in the safe methods of operation are probably of greater importance in preventing fires than any other single factor. Carelessness invariably leads to unsafe conditions, with greater chance of ignition of flammable products.

Rules for safe operation should be made and no infractions permitted, such as the use of short-cut methods, etc. All violations of these rules should receive suitable discipline and continued failure to comply should result in discharge for the safety of the remainder of the personnel as well as that of the plant.

Good Housekeeping

The fourth essential—good housekeeping—is defined as "The maintenance of the entire plant in a neat, clean and orderly condition." Pride in the plant, with a consequent high morale among the operating force, is the only way in which good housekeeping can be maintained. Conversely, good housekeeping in the plant clearly indicates the success with which the plant manager has impressed his force with habits of carefulness. The avoidance of waste by looking after the little things helps much toward successful operation as well as maximum safety and minimum fire risk.

Fire Fighting Facilities

In certain classes of oil risks special forms of fire fighting facilities are required, so the fifth point will deal in a general way with all types of fire fighting facilities found around oil plants. These may be divided into four classes: (a) high pressure water, (b) steam smothering lines, (c) foam systems, (d) hand and portable extinguishing equipment.

(a) High pressure water: The distribution of high pressure water for fire purposes should be separate from the low pressure water system used for utility purposes. The taking of utility supplies from the high pressure system should not be permitted, except in special cases, and then only in limited quantities.

The source of water supply should be unlimited, if possible, and at least equal to 24 hours' maximum pumping capacity. The use of booster pumps between low and high pressure systems should be encouraged where such systems parallel one another. Pumps in fire service should be well distributed. Distributing lines should be looped to minimize interruption due to breaks; hydrants should be placed at frequent intervals, and hose threads should conform to those in use by the nearest large city fire department, so as to enable the use of their equipment if necessary. An ample supply of hose is essential. The use of stationary play nozzles for special risks, on docks or the tops of high structures, is strongly recommended. Large sized lines and an adequate number of pumps of ample capacity are the criterion of a successful system. Careful layouts with provision for extension to future construction cannot be too strongly emphasized.

(b) Steam smothering lines: The effectiveness of steam smothering depends on an adequate supply of steam of fair quality. Controlled connections to tanks, oil pump rooms and the like is considered good practice. Frequent steam hose connections around refinery equipment handling hot oils are essential.

(c) Foam systems: Foam systems should follow in design the approved practice now well recognized in the industry. The design of a foam system should be handled only by competent engineers who have had previous experience and are familiar with the necessary re-

Taking the question out of Steel Ball *buying*

HOOVER Special Oil Well Balls are the definite answer to the specific needs of the oil industry for a steel ball that would deliver effective day-in-day-out service—profitable and permanent service, under the severe and rigorous conditions of oil well use.

All doubt and uncertainty as to their adaptability have been removed. Experimentation is a thing of the past. Hoover Special Oil Well Balls may by judged—may be safely and confidently bought—with the certain and definite knowledge of proven service in oil well use to satisfy the exacting needs and reinforce the judgment of the purchaser.

A record that stands the searchlight of inquiry

Of the millions of Hoover Special Oil Well Balls, in the one size which has proved the most popular in the oil industry, shipped since their introduction to the oil industry in 1920, not one single complaint of failure in service or dissatisfaction has been recorded. During this five year period not one single ball has been returned to the factory as defective or as failing in the hardest service to which a ball of any kind could be subjected—that of oil well service.

Hoover Special Oil Well Balls are the final result of years of study and experimentation on the part of Hoover engineers. They are designed expressly for oil well service and backed up by an unequaled record of effective satisfaction in actual performance. They are manufactured and guaranteed by one of the most reputable and financially responsible organizations in America—and the largest exclusive manufacturers of metal balls in the world.

Today Hoover Special Oil Well Balls are used as standard equipment by practically every manufacturer of oil well equipment in the United States and Canada.

HOOVER STEEL BALL COMPANY
Ann Arbor, Mich.

HOOVER
METAL STEEL · BRASS ALUMINUM BRONZE MONEL METAL STAINLESS STEEL **BALLS**

quirements. A properly designed system is almost certain to control the class of fires for which it is intended.

(d) Hand and portable equipment: Practically all of the approved hand and portable fire extinguishing equipment on the market is applicable to some part of the oil industry.

In refineries, all of the various classes of fire fighting facilities are applicable and many are so equipped at present. In seaboard terminals, water, foam, hand and portable equipment are used. In storage tank fields, or tank farms, a properly designed foam system will provide all the protection necessary. Marketing stations must be studied with a view to their size, the products handled, adjoining hazards, and amount of protection afforded by the municipality.

An inventory of the water, steam and foam fire protection facilities in a typical large oil refinery indicates that they represent an investment of approximately 3 per cent to 5 per cent of the total plant valuation, exclusive, of course, of the value of oil stocks. For large tank farms the cost of complete foam protection alone is several times the above, and will vary through a considerable range, depending on the amount of tankage.

The cost of fire protection of bulk marketing stations varies widely. For all cases it is on a higher percentage basis than for any other class of oil industry property. In some cases the cost of complete water and foam protection for marketing properties has even exceeded the total construction investment for the station proper. There is, of course, an economic limit which should not be exceeded in providing fire protection facilities for oil property.

Organization

The sixth essential is organization for combating fires. This is a matter which must be given individual study for the plant concerned. In each plant, however small, there should be a well trained and organized fire fighting force under a competent head with efficient assistants. This force is formed of the regular employes and should be subject to fire drill.

The utmost promptness in applying whatever fire fighting facilities the plant possesses constitutes the important element in fighting an oil fire. Hence an effective organization is just as necessary as adequate equipment, and without it the equipment may be practically useless.

From a fire prevention and protection standpoint there are several things which might be done to coordinate the practice of the industry and at the same time prevent fires to a great extent in the future. It is therefore recommended:

1. That the industry should continue the compilation of the fire records undertaken by the American Petroleum Institute last year, procuring not only records from each oil company in the United States regarding tank fires, their cause, and deductions therefrom, but also embracing in this compilation fires in refineries, in tank cars, in buildings, or fires of any description on oil properties. The comprehensive records already available for the past 10 years up to January 1, 1925, should be supplemented by the fire record for succeeding years. A scientific study of this data by a representative committee of the industry could accomplish much in designing and operating plants in the future.

2. That questions of general interest, such, for instance, as tank accessories, vents, screens, etc., should be studied, with particular reference to the effect of good and poor design. Many companies have done a great deal along these lines, and it is felt that if this information could be collated and made freely available to the industry great benefit would be derived from the same.

3. Where serious fires occur, with resultant agitation usually from local or State officials, as a matter of self-protection, the industry should appoint a properly constituted committee, selected from its own representatives, to study carefully the cause of such fires and to arrive at proper conclusions which may be broadcast, if necessary. In the past the industry has suffered much from injurious criticism and misunderstanding of facts in so far as fires are concerned in petroleum properties. In some sections, this idea has been applied very successfully, and it is hoped it can be extended throughout the entire industry.

The factors of proper design, maintenance and inspection effect not only the cheapest construction in long run but also greatly lower the fire risk. A policy of publicity regarding the facts that constitute the practice and ideals of the industry today regarding fire prevention and protection is strongly urged. It is felt that the institute, cooperating with the technical press of the country, can by a definite campaign do much to improve the tenor of public opinion; and thus favorably influence legislation regarding fire safety regulations for the petroleum industry.

PRESIDENT KINGSBURY ON PACIFIC OIL MERGER

Since the satement of K. R. Kingsbury, president of the Standard Oil Co. of California, on December 24, to the effect that an agreement had been reached covering a consolidation of the Standard Oil Co. of California and the Pacific Oil Co., a definite contract has been entered into under date of December 30, between the two companies, which provides, as already announced, that a new company will take over all of the assets and liabilities of the Standard Oil Co. of California and the undistributed net assets of the Pacific Oil Co.

One of the important assets to be turned over to the new company by the Standard Oil Co. of California is the latter's holding of Pacific Oil Co. stock, purchased soon after the organization of the Pacific Oil Co. some five years ago. The Standard Oil Co. has never sold any of that stock. Any distribution by the Pacific Oil Co. received by the Standard Oil Co. of California prior to the date of actual consolidation will therefore be held by the Standard Oil Co. of California as one of its assets to be turned over to the new company.

The consolidation contemplates the new company delivering to the Standard Oil Co. for its assets, a number of shares in the new company equivalent to the number of shares of Standard Oil Co. of California stock outstanding as of January 1, 1926, which was 9,516,434 shares and to the Pacific Oil Co. a number of shares equivalent to the number of shares of Pacific Oil Co. stock outstanding as of January 1, 1926, i. e., 3,500,000 shares.

When the Pacific Oil Co. distributes to its stockholders the 3,500,000 shares of stock in its treasury received from the new company, each stockholder of the Pacific Oil Co. will receive one share of the new company's stock for each share of Pacific Oil stock. The new company will therefore receive from the Pacific Oil Co. a number of shares of the new company's stock equivalent to the number of shares which the new company holds in the Pacific Oil Co. These shares may either be sold from the treasury of the new company or canceled, as the directors may determine. When this distribution of the new company's stock is made by the Pacific Oil Co., the enhanced value of the Pacific Oil Co. stock purchased by the Standard Oil Co. of California some years ago will have been fully realized.

In the statement of December 24, above referred to, it is further stated that the "Standard Oil Co. of California will not retain its stock ownership or any other interest in the Associated Oil Co." Therefore, any distribution of Associated Oil Co.'s stock coming to the Standard Oil Co. of California or to the new corporation as a distribution from the Pacific Oil Co. will immediately be disposed of. It is the present plan to dispose of this Associated Oil stock, whether received by the Standard Oil Co. of California or by the new corporation, in a manner other than by distribution to the stockholders. The effective date of the consolidation will be as of January 1, 1926.

BLACKWELL DRILLING COMPANY

P. O. BOX 1301

TULSA, OKLAHOMA

December 9th, 1925.

Mr. O. O. Adkins, Rep.,
Titusville Forge Company,
Titusville, Pa.

Dear Sir:

In answer to your inquiry relative to our success with the TIVAN FISH TAIL BITS, it pleases me to report that after trying several other high grade steels we are convinced that it is to our interest to standardize on your TIVAN bit. You are, no doubt, familiar with the drilling conditions in this locality, and the fact that we are buying nothing but TIVAN bits since our first trial should express our attitude. We hold no hesitancy in recommending this bit to any one.

Yours very truly,

BLACKWELL DRILLING COMPANY,

W. C. Thom.

Vice-Pres. & Gen. Manager.

"We are buying nothing but TIVAN BITS since our first trial"

Another Convert to Economical Drilling

When contractor after contractor comes forward with unstinted praise of a bit—unhesitating testimony that it "drills more hole per dressing"—is "stronger and more hardy"—means "fewer round trips"—will not twist off—it is time for the oil operator to sit up and take notice.

These men know what they are talking about, and their recommendation means an opportunity for every operator to save money—not a few dollars, but hundreds, thousands of dollars—for nothing eats up real money like over-frequent round trips to change bits, or fishing for a twist-off.

The TIVAN is the final word in fish tail bits—a new product of the highest metallurgical science—made of an especially developed alloy steel, especially treated and thoroughly tested. These bits are guaranteed to have a wider dressing and hardening range than any other bit. Their use will save you thousands of dollars.

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TIVAN ALLOY FISHTAIL BITS

Electric Steel Castings

—from a simple pull-rod connection up to the largest and most complex valve shell or pressure housing. Castings made by us are not only made of electric furnace steel but are poured into moulds with cores which are dried in electric core ovens and annealed in electric annealing ovens. Each process is carried out under the most exacting scientific conditions.

Then there's service. Scores of customers have written, expressing their pleasure on receiving prompt deliveries. It is the rule rather than the exception for us to make shipments before the scheduled time. Railway facilities assist in this. About one-half of the railroad mileage of the United States terminates here in Chicago. About 2,500 package cars leave every day for some 80,000 points. Your blueprint will bring our quotations.

CHICAGO STEEL FOUNDRY CO.,
Kedzie Ave. and 37th St., Chicago

EVANSteel Electric Furnace CASTINGS

THIS electric furnace built especially for us makes it possible to combine materials with great accuracy. It is tapped, filled for the next charge, and the current applied—all in FIVE MINUTES. Hand-charging requires from fifteen to twenty minutes and from six to eight men.

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CONTROL OF PRESSURE URGED BY DOHERTY TO INCREASE RECOVERY

By H. L. Doherty*

For many months I have been working very hard in making an intensive study of our underground oil pools so I could better understand how to operate these pools so we could secure the greatest possible recovery of oil. My work is not completed and perhaps not even well started, but I have reached some important conclusions and have made some important discoveries, and I deem it my duty to report these matters to your Commission. If I have made no mistakes in my reasoning and no errors in my laboratory work, in proving the correctness of my reasoning, I think the facts I am able to disclose at this time should be of great help in the work of your Commission.

If my representations are verified by your experts, these facts should be made available to everyone who is expected to contribute to the work of your Commission, for in the light of the facts that I now disclose, I think some of the people who have already answered their questionnaires will want to withdraw, substitute or amend them.

Oil is almost universally found in association with gas. Part of this gas is dissolved in the oil and this dissolved gas is in the condition of an extremely mobile liquid. The gas found in association with oil is not of the same composition in different pools and there is also a great variation in the composition of the oil found in the different pools. Therefore, the amount of dissolved gas varies in different pools due both to the character of the gas and the character of the oil. Our experiments seem to prove, however, that in each case the amount of gas so dissolved, will follow Henry's law. That is to say, the amount of dissolved gas will, in each case, be in proportion to the presssure.

Made Repeated Tests

My assistants in this work have made repeated tests of the amount of gas so dissolved, using representative Mid-Continent crude oils and representative Mid-Continent gases at various pressures, from atmospheric pressure up to 40 atmospheres. I think a fair average of the amount of dissolved gas would be 100 cubic feet per barrel of oil at 500 pounds pressure and therefore, according to Henry's law, there would be 50 cubic feet of dissolved gas at 250 pounds pressure, 200 cubic feet at 1,000 pounds pressure and 400 cubic feet at 2,000 pounds pressure. A barrel of oil is approximately 5.62 cubic feet, so the amount of gas dissolved in a cubic foot of oil at 1,000 pounds pressure would be approximately 35 cubic feet and at 750 pounds it would be approximately 26⅔ cubic feet.

I think it fair to assume that the amount of gas dissolved with the oil, as it exists in the ground as an undisturbed pool at depths of approximately 2,000 feet, would be not less than that corresponding to 750 pounds pressure. If you allow the pressure on the oil to diminish, a corresponding portion of this gas will come out of solution,—being transformed from a liquid to a gas. Keeping these facts in mind, it is now possible to determine the theoretical yield of oil that is possible by using the expulsive power of the gas dissolved within the oil to force this oil out of the sands and into the well.

Pressure of a Pool

If the pressure on a pool was dropped from its initial pressure to atmospheric pressure and the gas and oil could be maintained in their same relative position, then the gas and oil would increase from a volume of one cubic foot to approximately 27 cubic feet and what would remain in the sands would represent less than 4 per cent of the oil originally contained in the sands and a recovery of more than 96 per cent of the original oil would be realized. When I use the term "maintained in their same relative position," I mean that if one moves the other moves and both the oil and the gas would migrate to the well together. This theoretical yield, however, is manifestly impossible, but it is the goal at which we should aim.

I do not think that anybody has ever contended, up to the time this present controversy arose, that we have recovered on the whole in excess of 25 per cent of the oil originally found in the sands and the most advanced students of this subject believe it to be materially less and in some pools not to exceed a 10 per cent recovery. Probably the consensus of opinion prior to the time this controversy arose would have been a recovery of approximately 20 per cent. I will not take up in this communication the matter of the losses and causes for losses, which exist in our present system, except two, which I believe are of major importance.

Every leaseholder must now operate his well so as to produce the largest amount of oil in the shortest space of time. This makes it impossible to maintain the pressure on the pool. Many pools have a horizon of free gas at the top of the structure and many wells are drilled into the gas horizon and this gas is soon blown to the air and the pressure on the entire pool is diminished. The lowering of the pressure which is caused by the dissipation of this free gas, causes the oil to swell up as the gas comes out of solution and the gas breaks through the oil surrounding it and associated with it and finds its way to the well instead of propelling the oil, that originally contained it, to the well.

Dry Sands About Oil

The second large loss is one that has never been cataloged and no value has ever been assigned to it. As the gas is dissipated on a regulation structrue, containing free gas in the top horizon, the pressure on the oil is reduced and this permits the gas to come out of solution causing the oil to swell into greater volume, driving much of it up into the dry sands above the oil sands, and these dry sands will absorb this oil just as blotting paper absorbs ink and renders all or most of it impossible of recovery.

It is obvious that the pressures on the field should be so maintained and controlled that so far as possible the oil will always be confined to its original horizon. It is entirely possible that in some cases we have tapped oil pools in the gas horizon, and possibly all of the oil contained in the lower horizon has been absorbed in the dry gas sands by the process I have just described. It is not an uncommon practice now, when a wildcat gas well is brought in, to allow the gas to blow to the air to see whether the oil will not follow the gas.

Most Important Discovery

The most important discovery, however, that I have made is the fact that the oil as it exists underground, and as an undisturbed pool, is in a vastly different condition from the oil after we have raised it from the pool and placed it in our tanks. From all the information I could secure from Government Bureaus and other sources to determine the rate of migration of oil through oil sands, I found that the rate of movement of oil through the sands was so slow that it would make it impossible to have any of the large gusher wells that now characterize most of our pools.

It was my belief that the gas dissolved with the oil brought about a marked reduction in the viscosity of the oil and also a reduction in its surface tension. In other words, that oil in a virgin pool was much more fluid, due to this dissolved gas, than when it had been raised to the surface and reduced to atmospheric pressure, and that in a virgin pool the oil existed in a more liquid state and could more readily flow through the sands and that its affinity for and its tendency to adhere to the sands was greatly reduced. I had our engineers construct experimental apparatus to test out this theory, and we found there is a

(Continued on Page 138)

*Letter addressed to Chairman Work, Federal Oil Conservation Board.

BIT AND JAR-STEEL

BOX-PIN-STEEL-SLIP-STEEL

UNDER-REAMER-BODY and CUTTER STEEL, DRILL COLLAR STEEL

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CAPPING and SOCKET STEEL TOOL-JOINT STEEL

SPECIAL-HIGH-GRADE

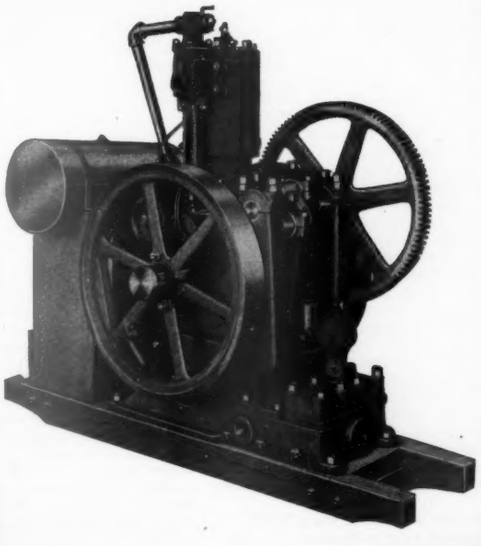
SPECIAL ALLOY STEEL **FORGING-BILLETS** **QUALITY and SERVICE**

Manufactured By

ANDREWS STEEL CO.

NEWPORT, KY.

Bovaird & Seyfang WATER COOLED GAS ENGINES



will solve your Water Problem. Direct connected to 3¼x5 Duplex Water Pump—engine is equipped with Bosch Magneto and gasoline attachment. May be used for pumping water to drilling wells or to pump oil from field tanks to storage. Over 500 of these engines are being used very satisfactorily wherever oil is produced.

Capacity 30 barrels per hour; 500 lbs. pressure—write for descriptive circular and prices.

BOVAIRD & SEYFANG MFG. CO.,
BRADFORD, PENNA.

SOMETHING NEW
In Receiving Boxes

THE REID RECEIVING BOX illustrated above is the development of years of experience in the manufacture of this and other refinery equipment.

The look windows are of polished wire plate glass, affording a clear view of the oil as it passes through. The circular glass illustrated is furnished where pressures of 10 to 15 lbs. are encountered, while where the pressures are low, not exceeding 5 lbs., rectangular glass is used. We can furnish either type.

A gas and oil tight cap on top affords access to the interior of the box. An easily removable screw clamp holds the cap firmly in place.

Waste gases are led away by a two-inch vent on the top.

This receiving box can be furnished with flanged connections for two, three or four-inch pipe.

Write for our Receiving Box bulletin

JOSEPH REID GAS ENGINE COMPANY

OIL CITY, PENNSYLVANIA, U. S. A.

BRANCHES AND AGENCIES: Marietta, Ohio; Logan, Ohio; Newark, Ohio; Shreveport, La.; Charleston, W. Va.; R. B. Moore, Bolivar, N. Y.; Frick & Lindsay Co., Bradford, Pa., and Kentucky Distributors. S. R. Shoup, 708 Pacific Electric Bldg., Los Angeles, Cal., Frick-Reid Supply Company, Tulsa, Okla., and Branches, Distributors for Oklahoma, Kansas, Texas, Arkansas and Wyoming.

BRANCH SHOP, TULSA, OKLA.

ELECTRIFICATION IN PETROLEUM INDUSTRY

(Continued from Page 70)

will assure their continued use. Common ratings for this service are 50 to 75 h.p. motors, either 6 or 8 pole, 50 and 60 cycles, with the operating advantages in favor of the higher speed equipment.

Although speed, power, and flexibility are inherent attributes of motor drive, the question of economy of operation is the outstanding feature. The cost per foot of drilling electrically is approximately one-third that of steam on the basis of power at 2 cents per kilowatt hour and fuel oil at $1.50 per bbl. Other basic costs of power and fuel oil will affect the comparative energy costs proportionally.

Cable Tool Work

For cable tool work the development of a successful drive involved an electric motor and control designed to give motion for drilling, power and high speed for pulling tools, bailing, and setting casing, and slow speeds for ramming bits; in other words, it had to possess all the flexibility of a steam engine drive. Two classes of equipments to meet these conditions are in general service, twin motor and single motor.

The twin motor equipment comprises two standard 15-35 horse power pumping motors for operation from the headache post. On shallow wells the low speed side, is used for drilling and the high speed side for pulling tools, bailing, setting casing, swabbing, pulling casing and other heavy operations about the well. With the motors on the low speed connection set on the first point of the control, ideal speeds are obtained for ramming bits. The twin motor arrangement presents the advantage of being able to move one motor and control to the next location and leave the other in place for pumping operations. The set-up is made to give 45 points of speed adjustment on both the high and low speed connection. The pole changes are rigidly fastened together, making it impossible to operate the two motors on different speed connections. By means of the headache post controllers both motors are brought to the first point of the control together and from then on the two controls can be operated independently and placed on any point to give the close speed adjustment desired. When stopping and running in the reverse direction the headache post controller operates both motors together.

In fields where drilling can be accomplished on the low speed side of the twin motors, there will obviously be a power saving over a single motor equipment, and on account of the higher speeds obtainable, better time can be made in bailing, hoisting and setting casing. A single motor equipment comprising a 75-horse power, 8 pole, wound rotor motor and control designed to produce operating characteristics similar to other types of drive has the advantage of twin motors in simplicity of installation. Where it is not advantageous to leave one motor on the well for pumping at the completion of drilling, the advantages of twin motor equipment are somewhat less pronounced. Savings by using electric drive are at least as attractive in this type of drilling as for rotary, and therefore, expansion in motor drive will be limited only by the availability of power.

Use Abroad

Foreign operators are making comparatively greater progress than domestic producers in oil fields electrification. This doubtless is a result of local field conditions as well as economic pressure. Even so, they are deserving of much credit for initiative and foresight in employing the producing means which will enable them to compete profitably in the markets of the world. What more convincing proof could there be for the success of electrification?

The foreign engineers were quick to adopt protected type equipment for drilling in gaseous fields. The motors as supplied have their only arcing parts, the ship rings, enclosed in a steel gas-proof housing. The control has all live parts oil immersed. To my knowledge, no oil-immersed control has been installed in this country, but many protected type motors have been marketed. In cases where protected motors are used, it is customary to place the open control in a separate house remote from the derrick, in order to insure safety.

That the electrification idea has not advanced more rapidly is fundamentally due to two causes—failure of the oil companies to appreciate the possible economies effected by its use and an apparent disinclination on the part of the power companies to solicit oil field load, feeling perhaps that the returns from desirable available load were not commensurate with the service demanded. In other words, the demands for power from oil companies were limited and that supplied was usually at a rate sufficiently high to discourage further adoption of electric drive. Within the past several years, however, central stations have come to appreciate the character, extent and desirability of the oil field load and as a result have made rates more attractive to operators. Likewise the oil companies have become sufficiently converted to the idea of electrification to build their own power plants in cases where central station power was not available at a reasonable figure, usually determined by the investment in additional lines necessary to reach any particular location. It is only in very unusual conditions too well known to require further elaboration here, where purchased power is not to be desired over an independent generating plant for all oil field operations. Now that the public utilities are realizing the desirability of oil field load, are rapidly extending lines, revising rates and increasing the dependability of service, in order to build up this class of load, an unprecedented growth of electrical development may be expected, as there is not a single operation in the field to which electricity can not readily be applied.

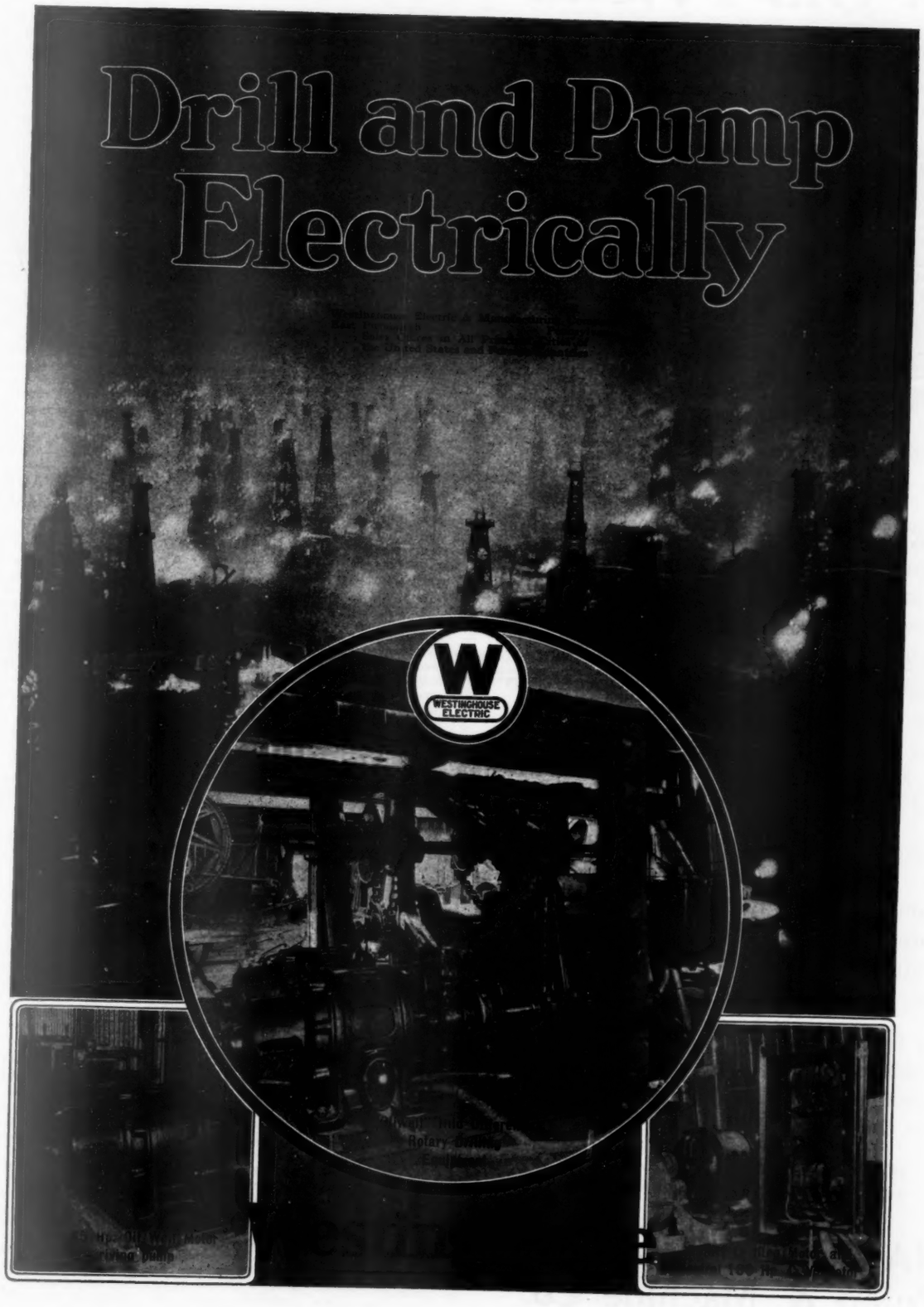
Adaptation General

As in every other industry, the adaptation of electricity to new uses has been gradual and in giving so much attention to field application many other important possibilities such as pipe lines and refineries have been overlooked in the economic application of electric power. There are thousands of miles of pipe lines throughout the country necessitating a large number of pump stations now operated with steam or oil. Many of these stations could be electrified to advantage, but here again the lack of adequate power at desired locations has been the principal obstacle in the way of this improvement. Motors can be applied to reciprocating pumps through suitable gear reductions or directly connected to centrifugal pumps. It is beyond the scope of this paper to discuss the adaptability of any type of pumps to pipe line service, but there is every reason to believe that high speed motors direct connected to centrifugals will find a wide usage in this class of service. Such installations would, of course, cost less to install as not only would the motor be smaller due to their high speed of operation, but with direct connected units the gear reduction will be eliminated. As the number of power lines increases and the central stations more fully appreciate the desirability of this type of load it would be ultra-conservative not to predict rapid electrification in this branch of the industry, even though special means are often necessary to insure absolute safety.

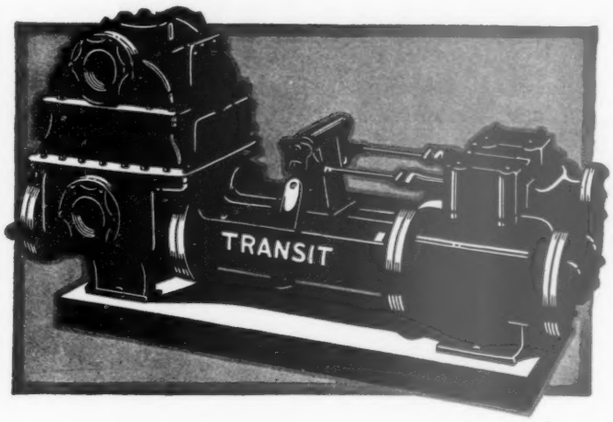
Where light oils are handled and gaseous vapors exist special precautions must be taken to guard against the hazards of fire and explosion, but several acceptable methods for doing this are already being successfully used. In fact, electric drive is no more hazardous than present accepted methods of pump drive and the rapidity with which it is adopted will depend upon the appreciation of its advantages by the operators and the realization by the central stations of the enormous load increases available from this source.

Use In Refinery

Applications of electric drive in the refinery are not unlike those of pipe line stations as far as general types of equipment are concerned. Refineries, how-


Drill and Pump
Electrically
W
WESTINGHOUSE
ELECTRIC

An Old Friend In a New Suit



THERE is nothing very interesting about a pump until it goes wrong, or until it keeps steadily on the job for ten or twenty years without any trouble. In either case, *then* you begin to sit up and take notice.

The pump illustrated above doesn't go wrong, and so to make it interesting without the necessity of you waiting say twenty years, we have made a new type illustration of it.

Inside of the new suit is just a plain 12x 10x18" TRANSIT Separate Chest Type Suction Pump for not over 125 lbs. working pressure, and for use on suction lines, in drain pits, and as a transfer and tank pump.

In forty years we have manufactured over 4000 pumps of this type for the largest and smallest pipe lines and refining companies in the world.

We are always ready and willing to work with you on any pumping problem.

NATIONAL TRANSIT Pump & Machine Co.

Oil City, Pa.

New York Pittsburgh Philadelphia
Cleveland Denver Houston Tulsa

ever, do differ from pipe line stations in the independence which they can assert in obtaining cheap electric power where central station power is not available at reasonable rates. This is particularly true of the larger refineries where the relation between the enormous demands for process steam and power are unusually favorable for the generation of by-product power by means of non-condensing or bleeding turbines. Furthermore, large amounts of feed water must be heated and when this is done efficiently, according to the most modern methods, another source of by-product is provided. Feed heater turbines designed for economical feed water heating should generate 1,200-1,500 Kw. additional of by-product power for each 30,000 pounds feed water heated.

Some refineries are generating by-product power today principally by the use of non-condensing and bleeder turbines taking steam from the boilers at pressures around 150 pounds and delivering process steam at pressures around 20 pounds per square inch gauge. The amount of power being generated in this way, however, is only a small part of that which is available as a by-product.

Fuller Use of Power

The conservation of capital represented in existing equipment such as steam mains, boilers and auxiliary equipment is an important factor influencing progress towards a fuller use of by-product power in oil refineries. Existing steam mains cannot always be replaced profitably by larger ones to accommodate the increased volume of steam at reduced transmission pressures, and the motorization of auxiliaries which should be viewed as a normal progressive development essential for high operating economy cannot be fully accomplished by a single immediate effort.

A demand for steam at prevailing pressures of 100 to 125 pounds gauge, therefore, will continue, which suggests that refineries using steam of this range of pressure in sufficient quantity to warrant the use of high back pressure noncondensing or bleeder turbines would find some advantage in the adoption of higher pressures than are now generally used in refineries. These pressures which migh well be 350 pounds per square inch or higher, can then be reduced to the prevailing line pressures by expanding the high pressure steam through a non-condensing or bleeder turbine. Steam so expanded will generate cheap by-product power. It must be evident that enormous amounts may be generated by expanding to as low pressures as possible consistent with the refinery layout and practices.

When new boilers are required because of needed extensions to the boiler room capacity or absolescence of boilers, the investment charges against a power station generating by-product power from high pressure steam should be less than those against a condensing power station of equal capacity. The use of high steam pressure and high back pressure turbines should, therefore, be exceptionally attractive to expanding refineries which thereby obtain an additional source of cheap by-product power without modifications of existing steam distributing mains or auxiliary units.

By-Product Power

In general, by-product power will be found the cheapest available to oil refineries. Since all of the steam used by the generating units is delivered to process uses, the steam charge for power is small, usually not more than one-fourth of the charge of a condensing power plant. Operating charges in the generating room should also be less than those of a condensing plant as the condenser is either largely reduced in size or entirely eliminated. A full development of by-product power generation would encourage economy by accelerating the electrification of pumps and auxiliaries. Furthermore, with very cheap power there will be found for electricity uses that are not now economically feasible. Electrical heating of pressure stills requiring accurate temperature control to increase the quality of product, and of paraffin sweaters, as well as other industrial heating uses will automatically suggest themselves with the advent of a cheap power source.

A consideration of the trend of electrification in the oil industry would be incomplete without the mention of arc-welding, an agent which has effected so many substantial economies wherever it has been tried. Storage tanks presented one of the first and most obvious uses for electric welding, but within the last few years enormous strides have been made in applying it to pipe line and refinery construction, as well as to general repairs in all branches of the industry. Lack of time prevents any detailed elaboration on its future possibilities. What actual progress awaits in the application of welding in the oil industry is a matter of conjecture, but if results in the past few years may be taken as a criterion, or even an indication, we can expect exceptional developments within the next five or 10 years.

By comparison alone with other industries which have been electrified within the past decade, it would be safe to predict a widespread adoption of electricity in all of the ramifications of the oil industry, at present not over 5 per cent electrified. However, with the existing evidences of the many practical, flexible and economical applications of electrical power, and the favorable recognition given it by the central station, the most conservative cannot help but view most optimistically the possibilities in this great industry of the increased use of this economic agent—electricity.

J. W. STEWART REPORTS VENEZUELA PROGRESS

NEW YORK, Jan. 16.—J. W. Stewart, vice president of the Pan American Petroleum Exploration Co., has returned to New York from an inspection of properties of Lago Oil & Transport Co. in Venezuela, enthusiastic as to the value of these properties. He said:

"The quantity marketed is limited solely by the capacity of tanker tonnage available. The oil is transported by lake tankers to the island of Aruba, off the coast of Venezuela, where the company's ocean terminal is. The oil is transferred from the lake tankers to the ocean going tankers at that point. This method of transportation is cheaper than pipe line.

"About 7 miles from La Rosa, on an area known as Ambrosia, a well was drilled with a large flow of oil, but was shut down because of mechanical difficulties. Two other wells are being drilled on Ambrosia. This is a different structure than La Rosa, being about 7 miles from that place.

"I estimate that Lago has about 15,000 acres of semi-proven territory. In addition the company is drilling two other important test wells, one at Punta Gorda and Superior No. 45. Both these locations are well out in the lake."

Oil has been found on two structures. It is the opinion of geologists that there are 12 known structures, extending into the lake, where oil may be found.

MEXICAN GOVERNMENT KEEPS RAILWAY WELLS

NEW YORK, Jan. 16.—Bertram Holloway is expected to be elected president of National Railways of Mexico with Leon Salinas vice president. Mariano Cabrera will be general manager. On the return of the railway system to private control January 1, the petroleum department was made a dependency of President Calles' office.

National Railway wells are now claimed to have daily capacity of 40,000 bbls., but are not being worked at anything like full capacity. The most important aspect of the railway oil situation was the purchase of International Oil Terminal 8 miles up Tampico River on which payment of $90.000 has recently been made or about 30 per cent of total price. This gives the Government sufficient pipe lines to Tampico to load tankers and to handle entire output of wells and places it on equal footing with foreign companies handling Mexican petroleum.

3 Sets as a Trial—"Ship 50 More Quick!"

A good salesman — a good product and an open-minded buyer; it took all three to get 3 sets of "JOHN CRANE" in as a trial. Then, bang!! "Ship 50 more sets quick!"

"JOHN CRANE" Metallic Packings have been used with excellent results in the oil fields for seven years. One set of packing on line station pumps has been in service ten years (name of user on request).

Where it is necessary to maintain a low pressure handling gasoline and light gravities, Style 110 (above) is often recommended. It is spirally wound babbitt foil over a braided asbestos core—ample resilience with only metallic contact.

Often Style 100, all babbitt foil, is recommended.

Handling water, steam, air, ammonia, Styles 300 (asbestos channel) or 400 (duck channel) are recommended.

For hot tar and very heavy fluids, copper foil packing is used. Style 200 is copper wrapped over braided asbestos and Style 500 is copper wrapped over a braided copper core.

So varied are the requirements of this service that we desire to know what the job is before recommending the packing for it.

Write us, describing equipment, name liquid or vapor handled, difficulties encountered, stuffing box dimensions and order us to send the sets we recommend. With our years of close study and successful work, we can give you packings of high efficiency in your various installations.

Our 136-page text book, "Metallic Packing," sent to engineers with our compliments. Kindly use letterhead.

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1819 Sherwood Terrace, Chicago, U. S. A.
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Agents in leading supply centers.

Crane Packing, Ltd., Slough Bucks, England
Manufacturers for Europe

"John Crane" Metallic Packing

The Cross Cracking Process

What more can be desired? The Cross Process will give you the maximum percentage of Gasoline at the lowest operating cost and your profits will always be the highest.

THE M. W. KELLOGG CO.,
90 West St.,
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304 Lane Mortgage Building, Los Angeles, Calif.

Floodlighting means better light at less cost.....

THE usual demand around refineries, tank farms, car loading stations, and other parts of the plant is for "more light." Dark corners won't do.

Pyle-O-Lytes cover all the dark spaces, light up everything at once with an even, brilliant light, so that production goes on at top speed,—delays and mistakes end.

The new 23-inch Pyle-O-Lyte not only gives better lighting, more light where you need it, but does this with a saving in operating costs at the same time.

The Panhandle Refinery at Wichita Falls, Texas, replaced their old lighting methods by installing three 23-inch Pyle-O-Lytes, and saved 7 kw. on their power bill. A reduction from 10 kw. to 3 kw. is a saving worth having, in addition to the better light produced.

Pyle-National engineers will help you plan a layout of floodlights to meet the special conditions of your own plant. Ask for the full story of Pyle-O-Lytes and find out what they can do for you.

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Export Department: International Railway Supply Company, 30 Church Street, New York City

PYLE-O-LYTE TRADE MARK THE PYLE NATIONAL COMPANY REGISTERED

OGJ1-21E-RTG

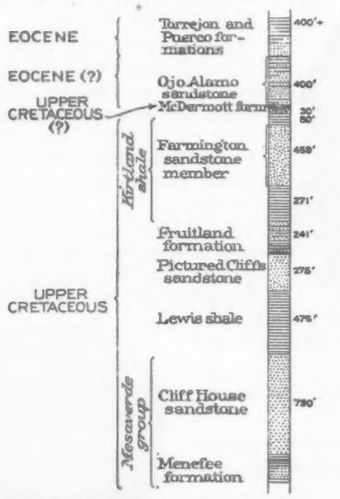
BLOOMFIELD OIL AND GAS FIELD, NEW MEXICO

(Continued from Page 70)

by shale within a few hundred feet.

Structure and Accumulation

The stratified rocks at the surface of the Bloomfield apparently dip at most places a few degrees north of east, at a rate of 20 to 30 feet to the mile. A sub-



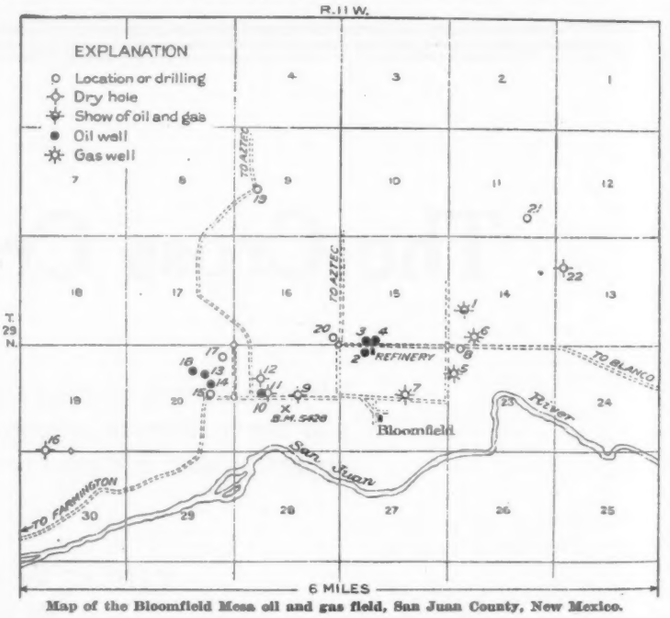
Section of formations on San Juan River west of Bloomfield.

surface map showing the configuration at the top of the Ojo Alamo sandstone would give the impression, however, that this general dip is interrupted by two very low domes, one with its apex near the Coal Creek wells, in Section 20-29n-11w, and the other with its higher part near the Montezuma Syndicate well, in Section 13-29n-11w, separated by a syncline near the Bloomfield Oil & Gas Co.'s wells in the SW Section 15 and the NW Section 22.

It is possible that the form of the top of the Ojo Alamo sandstone is due chiefly to original irregularities in deposition and that the apparent folds do not really exist. Moreover, owing to the presence of unconformities at the top and base of the Ojo Alamo sandstone, it is unlikely that such a subsurface map would properly reflect the structure of the underlying beds. Local folding has apparently had no important part in the accumulation of oil and gas in the field, though there are some suggestions of a broad fold, with its axis running from the rim of the San Juan Basin toward the center of the basin, that may have had some influence.

From all the data available it seems probable that the occurrence of oil and gas at Bloomfield Mesa is controlled by the presence of shale-sealed sandstone lenses in the Farmington sandstone member of the Kirtland shale. Where oil has been found in quantities sufficient for production the drill has commonly released first gas, then oil, and finally salt water. Attempts to shut off the salt water have resulted either in shutting off the oil or diminishing its yield, and operation has shown that where the sand contains oil its also carries salt water. Where wells have passed through the producing zone and have not found oil, salt water is also absent. Many of the wells that have produced oil are adjacent to wells that have not found appreciable amounts of oil or gas, as may be seen from the accompanying map, which, shows the location of all wells drilled up to the time of examination. In the western part of the field, in Section 20, there appears to be a lens which yields a small amount of oil from the Coal Creek Oil Co.'s wells Nos. 1 and 2 and the West Coast Oil Co.'s well No. 1. The Leidecker No. 2, just a few hundred feet away, found neither oil nor gas at the horizon of the bed from which these wells produced. Similarly in Section 21 the Gibson Oil Co.'s well No. 1 (No. 10 on the map) obtained a yield of about 2½ bbls. a day, but wells Nos. 2 and 3 (map Nos. 11 and 12) found nothing. In Sections. 15 and 16 the Bloomfield Oil & Gas Co. found oil in wells Nos. 2 3 and 4 and gas in wells Nos. 5, 6 and 7. Well No. 5 produced about 2,000,000 feet of dry gas a day when brought in and well No. 6 was capable of producing 200,000 to 300,000 cubic feet of gas, which would yield, according to a field test, about 3 pints of gasoline per 1,000 cubic feet.

No test has yet been made of the Pictured Cliffs and Cliff House sandstones,



Map of the Bloomfield Mesa oil and gas field, San Juan County, New Mexico.

Index of Wells

Map No.	and name of well—	Elevation (Feet)
1	Bloomfield Oil & Gas No. 1	5,502
2	Bloomfield Oil & Gas No. 2	5,448
3	Bloomfield Oil & Gas No. 3	5,452
4	Bloomfield Oil & Gas No. 4	5,457
5	Bloomfield Oil & Gas No. 5	5,451
6	Bloomfield Oil & Gas No. 6	5,480
7	Bloomfield Oil & Gas No. 7	5,466
8	Bloomfield Oil & Gas No. 8	5,471
9	Bloomfield Oil & Gas No. 9	5,428
10	Gibson Oil Co. No. 1	5,435
11	Gibson Oil Co. No. 2	5,428
12	Gibson Oil Co. No. 3	5,454
13	Coal Creek Oil Co. No. 1	5,503
14	Coal Creek Oil Co. No. 2	5,510
15	Coal Creek Oil Co. No. 3	5,470
16	Leidecker No. 1	5,485
17	Leidecker No. 2	5,509
18	West Coast Oil Co. No. 1	5,527
19	Beegal No. 1	5,635
20	Ringer No. 1	5,470
21	Francisco Drilling Co. No. 1	5,626
22	Montezuma Syndicate No. 1	5,633

This is what happened to the cooking vat

on a Mid-Continent lease where Tret-O-Lite was given a trial. A like fate has since befallen the vats on the other leases of this producer.

Cut Oil is still being treated in some sections by the wasteful boiling process, which not only reduces the gravity of the oil many degrees but frequently consumes as fuel 15% of the oil recovered.

The Tret-O-Lite Process is conducted with very mild heat or none at all, does not reduce the gravity or volume of the oil, and recovers every particle of petroleum. Its actual performances proclaim it the one scientific and THOROUGH treating method.

Our field men are Tret-O-Lite experts, will recommend the type of installation, superintend its construction, and instruct your men in its operation. A personal call from the nearest one will not obligate you. Write us.

Process Patented

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St. Louis, Mo.
Offices and Plant: Webster Groves, St. Louis County, Mo.

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Gasoline	Greases
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Bunker Oils	Gear Lubricants
Diesel Fuels	Axle Greases
Signal Oils	Wire Rope Lubricants
Miners Oils	Pale Oils
Gas Oil	Red Oils
Distillates	Black Oils
Spindle Oils	Floor Oils
Motor Oils	Waxes
Engine Oils	Asphalts
Dynamo Oils	Road Oils
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which, from stratigraphic information obtained at the outcrop along San Juan River and from logs of wells in the Bloomfield Mesa Field, may be expected at depths of about 1,400 and 2,200 feet respectively. However, if, as appears probable, there is no definite anticlinal structure in this area, this absence of favorable structure may have prevented the accumulation of commercially valuable pools of oil or gas in these less lenticular deeper sands.

No Great Increase From Venezuela for Six or Eight Months

S. S. Price, vice president of the Dixie Oil Co., returned to Tulsa from a six weeks' trip which took the Standard Oil Co. of Indiana, Pan American, Eastern Petroleum, Lago and Dixie Oil Co. officials to Venezuela, sees great possibilities in the Venezuelan territory, but does not look for any greater amount of oil than is now being brought out for six or eight months. He says the difficulty is transportation. There is not a sufficient number of shallow tankers to transport the oil from the producing region to the loading terminals on an island off Lake Maracaibo.

Because of this condition he states the Lago company is planning the erection of considerable storage tanks, as the company with a production of some 42,000 bbls. a day at present is shipping only 22,000 bb's. daily.

The party also inspected the Royal Dutch Co. territory at Curacao, which is running approximately 20,000 bbls. a day of Venezuelan crude. That company's chief source of production is in Mene Grande Field where its output is 23,000 bbls. a day, through its subsidiary the Caribbean Petroleum.

EASTERN FIELDS

(Continued from Page 62)

to drill on the Lewis Haines farm. In Wayne Township, the Martin Oil Co. has shut down for water on the Josephus Fox farm. In Aleppo Township, the Black Creek Oil & Gas Co. has started to drill on the Bert Lohr farm. M. Garrison & Co. are due in the Big Injun sand on the Hannah M. Sough farm, in Gilmore Township.

In Richhill Township, the Greensboro Home Gas Co. is due in the Big Injun sand at a test on the Silas Bond heirs' farm. In Springhill Township, the Dunmar Oil & Gas Co. has started to drill on the Frank Keller farm. In Richhill Township, G. N. O'Neal & Co. are drilling on the Banjamin Polen farm.

Gas Well in City Limits

A gas well with an estimated production of 1,000,000 feet a day has just been drilled in by some city officials, Charles Finley and others, on the James Finley property near Silver Lake, Twelfth Ward, Pittsburgh. This is the second gas well completed on this property within two years. One of the companies supplying gas to Pittsburgh consumers will probably take over the gas and turn it into one of the mains.

TEXAS SPECIAL FIELD FOR STUDY OF GEOLOGY

AUSTIN, Tex., Jan. 16. — As a field for geological study and training Texas offers an unrivaled opportunity for the student of the earth's geological formations, according to Dr. Charles Schuchert, professor emeritus of paleontology at Yale University, who has arrived in Austin to give during the winter term a course in stratigraphic geology at the University of Texas.

"In this State there is present a tremendously long geological sequence from the oldest to the youngest formations and from the undeformed horizontal strata to the decidedly folded and faulted ones," he said. "They extend from the coastal formations in horizontal strata to the folded and faulted ones in the Delaware and Guadalupian Mountains. Furthermore, many of these have great supplies of petroleum, ranging from the younger to the ancient ones of the Paleozoic era. At present, and for some time to come, the greatest supplies will come from the salt domes of the coastal plain and from Central and West Texas and thence north into Oklahoma and Kansas."

Doctor Schuchert said that a few years ago it was widely believed oil production would play out, or at least be vastly reduced during the next 25 years, but now many excellent geologists see no fear of an immediate exhaustion of this natural wealth.

"With the progress of scientific research and discoveries some of the old theories as to the origin of petroleum have been placed in the discard," he said. "One of these is the old belief that the natural oils are of volcanic origin. It is now well known that petroleum is the end residium of once living things and chiefly of marine plants, although some of it is also of animal origin."

The course Doctor Schuchert is giving in the University has to do with the sequence of strata that make up the geological column and how to tell the geological age of these strata through the fossils that are entombed in them.

"As for the age of the earth, our conceptions have been greatly altered by the work of the physicists during the past 20 years," Doctor Schuchert said. "The best calculation of the earth's age comes from the rate of disintegration of radium-bearing minerals, and on that basis the age of the earth is now estimated to be not less than 1,500,000,000 years. Such a vast length of time is beyond our conception. A century ago it was almost universally held that the earth was about 5,600 years old. Through the rate of disintegration of radium-bearing minerals all of our older conceptions have been greatly altered. Until this discovery was made and worked out, geologists the world over held that the age of the earth was of the order of about 125,000,000 years. This calculation was based on the amount of table salt in solution in the oceans and the present rate of new supplies yielded by the rivers flowing into them. The rivers today, however, are yielding a greater annual average of this salt than was the rate during the geologic ages, and geologists began to think of the age of the earth as something like 300,000,000 years."

GORDON SAND YIELDS MOST TO AIR PRESSURE

PITTSBURGH, Pa., Jan. 16. — Over in the Taylorstown district, Washington County, the Washington and South Penn Oil Companies have installed air compressor stations and are forcing air into the old wells, increasing their production to double, and in some instances three times as much as before the pressure was applied. The air is forced through a 6-inch main line at a maximum of 250 pounds. At first the pressure was kept on during the night and the wells pumped during the day. Later it was found advisable and better results obtained by keeping the air pressure on all of the time.

While the Washington and South Penn oil companies are the first to try this method in Washington County, the results are so satisfactory that other companies will adopt the same plan. The Gordon sand has been found to respond with a greater increase in production after the wells have been put on air than any other of the producing formations. The new departure has added value to many of the oil properties after the compressor stations have been installed.

Some 30 years ago the Forest Oil Co., now a part of the South Penn Oil Co., applied the same method to some of its old wells in Butler County. The results were not entirely successful, particularly where there was water encroachment, and it was abandoned. In the shallow sand territory in West Virginia and southeastern Ohio, good results have been secured and the method has been used in some localities for a great many years.

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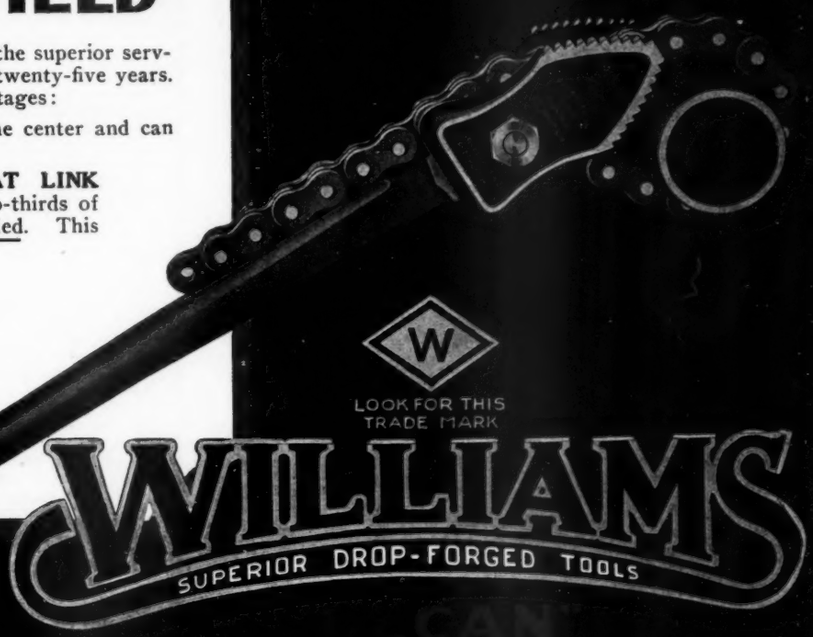

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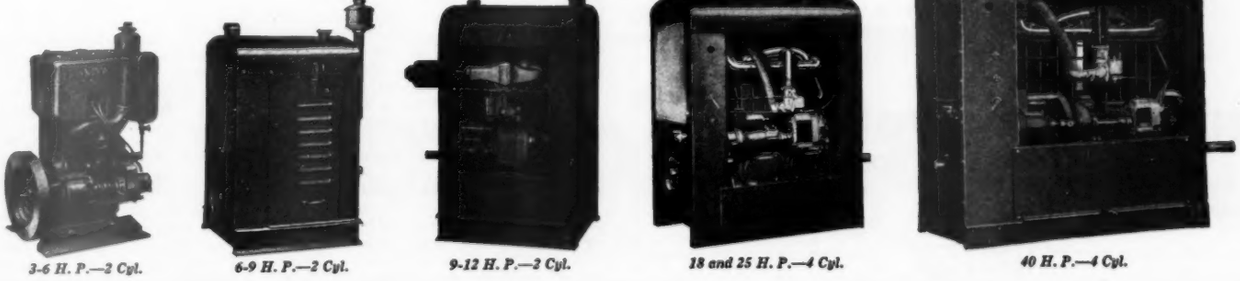

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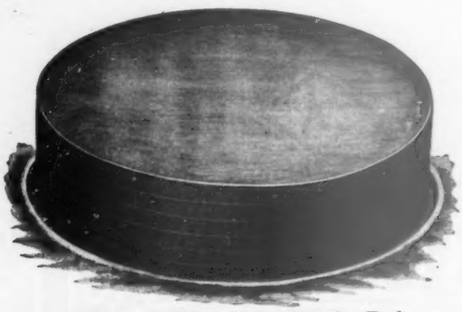

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KENTUCKY-TENNESSEE

(Continued from Page 60)

real chance for these districts is the find of a deeper sand which will hold up.

The only test now drilling of any importance whatever, is that of Al Haynes on the Keller farm in the northeast extension area of Warren County. The first hole had to be abandoned on account of a hopeless fishing job.

Eastern Division

Little was accomplished by the drill during the past week in the eastern Kentucky fields due to the unusual cold weather. Water in the creeks and rivers froze causing a shortage of water, and a large number of water lines connected to drilling machines also froze causing an almost complete shutdown in drilling operations.

North Weir Field

The North Weir Field, comprised of parts of Lawrence and Johnson Counties, had but three completions, which was, by the way, one more than any other Kentucky county reported.

In District No. 22-A the Indian-Tex Petroleum Co. brought in the best well of the week in its No. 5 on the J. C. Gilliam estimated at better than 10 bbls. from the Weir sand.

The Union Gas & Oil Co.'s No. 10 C. E. Frailey, District No. 22, made 5 bbls. from the Weir, and the same concern's No. 4 R. N. Sparks made a like amount from the same formation.

South Weir Field

In District No. 29 of the South Weir Field, of Johnson and Magoffin Counties, the New Domain Oil & Gas Co. finished a 7-bbl. starter on the Gardner tract in the Weir sand at an approximate depth of 1,100 feet. In District No. 31, the Carter Oil Co. is reported with a 5-bbl. pumper in its No. 4 on the W. M. Sayler place, from the Weir.

Wayne County

P. H. Kennedy and others have a 2-bbl. pumper on the J. B. Stinson place. It was No. 2 on that farm and it was drilled to the Beaver sand at 950 feet.

In District No. 2, Wayne County, the Bowden Oil Co.'s No. 1 J. W. Burnett, several locations in advance of production, was dry and plugged at 972 feet.

Other Completions

The American Roller Mills Co. brought in its No. 20 on its acreage near Summitt, Floyd County, for 250,000 cubic feet of gas daily from the Corniferous sand.

In District No. 7, Estill County, C. O. Ansler's No. 2 Reed is pumping 5 bbls. on the power from the Irvine sand.

Oil Tax $11,471 in Month

Kentucky's 1 per cent production tax on oil gave the State $11,741 in taxes during the month of November, the State Tax Commission reported. Production for the month was 518,139 bbls., valued at $1,147,126.62. Lee County led with 133,581 bbls., and Johnson was next with 82,471 bbls.

CENTRAL WEST

(Continued from Page 56)

completions were reported for the week from the Lima Field.

In Kilbuck Township, Holmes County, the East Ohio Gas Co.'s test on the southeast corner of the John W. Patterson 80 acres, is a dry hole in the Clinton lime.

Indiana

While only one completion was reported from the Indiana fields, it was an important one, being a test drilled by the Murphy Oil Co. of Pennsylvania in the southwest corner of the R. M. and P. C. Stewart farm, in the southwest quarter of Section or Lot 13, Clay Township, Pike County, with a flush of 25 bbls. Top of sand was found at 970 feet and drilled 16 feet in. This well shows an extension of a short distance from production and adds a considerable acreage for future development.

Much attention is drawn to the new development in southwestern Indiana, just across the Wabash River from the Allendale Field of Wabash County, Illinois. Several wells are now drilling in Decker Township, Knox County, on the Indiana side of the river, just opposite the development on the Holson-Dorney farm, on the Illinois side.

Anson Henry Russell and others, drilling at their tests on the south and east side of the Wabash River, located on the Ballentine 515 acres, Section 20, Decker Township, Knox County, Indiana, also started the drill at another test on the Decker farm, in the northwest corner of the northeast quarter of the southwest quarter of Section 34, same township, both wells being across the river from the Holson-Dorney farm, upon which some large producers have been found in the Biehl sand formation. This is known as the Russell Oil Producing Co. of Cleveland, Ohio. The Eastern Gulf Oil Co. is busy at three locations on the Musselman 300 acres, Section 34, the Nellie M. Orr farm, Section 36, and the Henry Sullivan farm, Section 16, same township.

The largest gas well ever reported at a 300-foot depth in Indiana was recently found on the August Yeager farm, Section 9, Monroe Township, Pike County, southeast of Oakland City, in the Raibourn Field, and the roar of the gas could be heard for miles around. Earl Melton, one of the drillers, estimated the flow at approximately 2,000,000 feet. This is remarkable when it is considered that this quantity of natural gas was found at a shallow depth of but 300 feet below the surface. It was at first thought that a coal pocket had been struck but tests were made and it is reported a certainty that the well got its gas in a sand and is a reality and also a wonder.

Other tests are planned for Decker Township, as the Payne and Fox test expects to get to drilling within a week or so. This test is close to one of the old wells drilled on the Orr farm some years ago, and about a mile from the three wells drilled on the Perry Cunningham farm in which oil was found but in small quantity. No well has been drilled within 2 miles of the drilling well on the Ballentine farm, although Greggs and others last summer drilled 2 miles to the southwest and found a dry hole.

Almost all the land along the Wabash and White Rivers has been again leased in Decker Township and different companies are to try to find paying production. This is a territory immediately between the new Illinois fields at Allendale and the Gibson and Pike County Fields of Indiana, known as the Princeton district. Several attempts have already been made in the past to hit oil on this strip of territory and traces have been struck repeatedly, but there has been no find worth while.

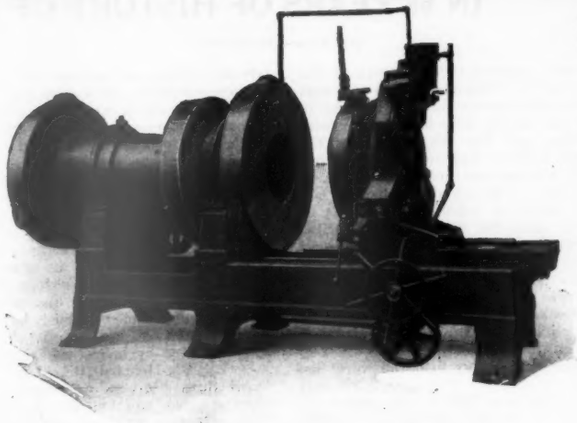
Illinois

An interesting find was made in the Allendale Field of Wabash Township, Wabash County, the newest Illinois field, when the Adams Corner Oil Co. found both gas and oil in its test on the John Stillwell farm, in the Stillwell Pool in the Bridgeport sand at around 1,100 feet. The well makes a nice showing in that shallow formation, which years ago was a wonderfully productive sand in the Lawrence County Field, to the north of the Allendale development. What the well will do is yet unknown, as it may be drilled down to the Biehl or Jordon sands.

Completions are few in any part of Illinois at this time, owing to snow and cold. In the Allendale Field, the Mt. Carmel Oil Co.'s wells Nos. 2 and 3 on the F. M. Leek farm, Section 1, are not as good as the first showing indicated. No. 2 is credited with 10 bbls. at 1,386 feet and No. 3 at 85 bbls. at 1,410 feet. Joe S. Young and others' No. 5 on the H. A. Fox farm, Section 1, produced 45 bbls. at 1,410 feet, all being in the Stillwell Pool.

The Trenton Rock Oil & Gas Co.'s No. 3 well, 200 feet from the south line and 660 feet from the east line of the William Howard farm, Section 30, Martinsville Township, Clark County, showed 70 bbls. the first 24 hours at a depth of 1,605 feet, the oil being found below the Stray sand, in the Niagara limestone.

The Ohio Oil Co. abandoned its No. 15 on the J. D. Madding farm, Section 30, Petty Township, Lawrence County, completed some 10 or more years ago.



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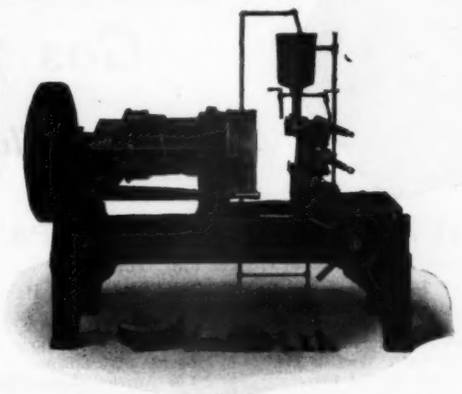

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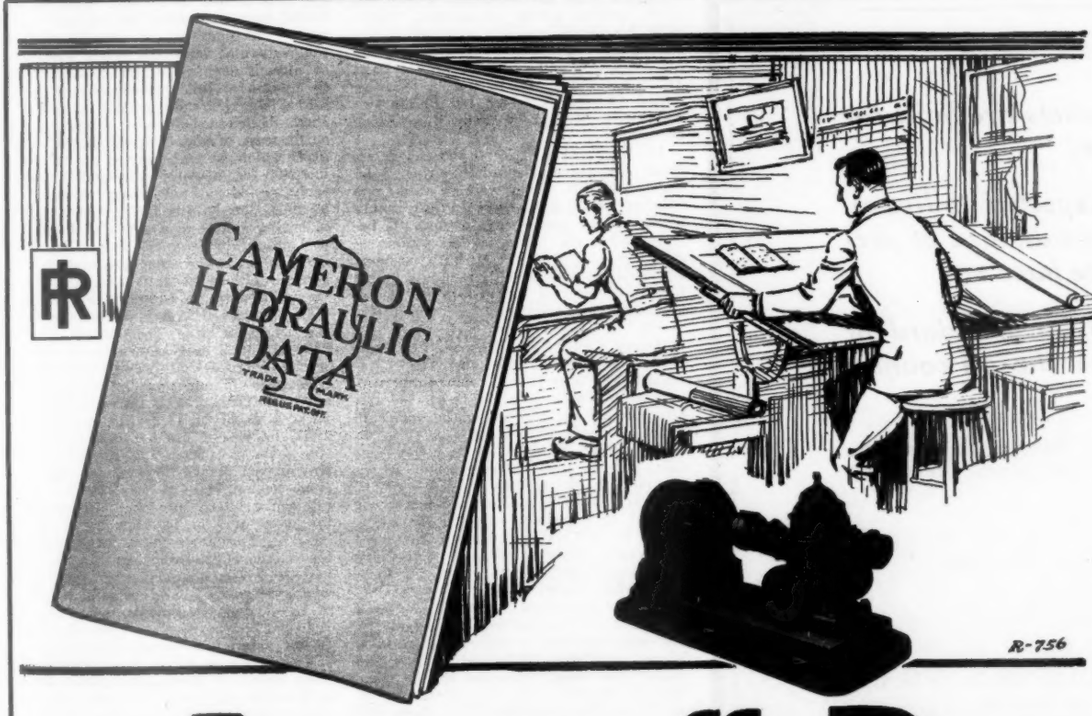

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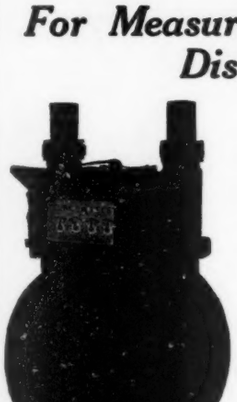

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BARNSDALL AN OUTSTANDING NAME IN 65 YEARS OF HISTORY OF OIL

By James McIntyre

No more significant name than Barnsdall could have been given to the combination of interests recently brought together and which included the Barnsdall Oil Corp. and the Waite Phillips Co., and which later may include other producing, refining and marketing units.

The name of Barnsdall has had an honorable record of achievement in the oil industry since the first well was drilled in 1859, for it was William Barnsdall, Sr., of Titusville, Pa., who drilled the second oil well in the Pennsylvania field which was the only field in America at the time and later drilled the first well showing oil in the Bradford Field, which has been the greatest producer of very high grade oil of any field the world has known.

Not alone was William Barnsdall second only to Colonel Drake as a driller of oil wells, but he and others built the first oil refinery in the oil regions and maintained it notwithstanding many handicaps.

William Barnsdall's second son Theodore N. Barnsdall, known to his intimates as Thede and sometimes as The., and often spoken of as "Big Thede" because of his immense height, breadth and girth, was the greatest wildcatter the industry has known—a man who spent the best years of his life leasing lands far removed from known production and drilling where others would have feared to take the chance.

Another son, William Barnsdall, Jr., more conservative than his older brother, was well known and successful as an oil and gas producer in the eastern fields, and the eldest brother N. B. Barnsdall, better known as "Bide" Barnsdall, for years owned the Kendall refinery in Bradford, starting it and conducting it successfully until his death.

All Were Successful

The father and sons all succeeded, Theodore with the most daring and the most energy, piling up assets, which, after his death, and his involved affairs having been successfully ironed out by his son-in-law and executor, Robert Law, Jr., developed a fortune said to have netted $9,000,000, which fell to his two daughters, Mrs. Law and Miss Alene Barnsdall.

Let us dwell a little on the characteristics the three Barnsdall boys, Bide, Thede and Bill. They were as unlike one another as three brothers could possibly be, but there was always a close tie between them all. Bide, as the writer remembers him, was a tall, lank, nervous energetic individual with red hair, florid face and features inclined to be sharp. He did not look anything like his brothers, either in feature or physique. He possessed a fullness of Barnsdall wit and humor, for which Bide and Thede, especially the latter, were famous and was a good business man but with no ambition to go out and swing the big deals which to Thede were all in a day's work. Bide, refined oil and as a hobby and side line—a sort of recreation, which to him was like golf to another—took a flyer at the stock market, being a great student of industrial values. He maintained a comfortable and hospitable home and was a respected resident of the city of Bradford until death closed his busy and active career.

William Barnsdall, the third son, was well known in the natural gas world. In physique he more resembled his brother Thede, only that he lacked a little the height and weight attained by his more famous brother. He was president of the Manufacturers Gas Co., a Barnsdall interest, and had general charge of the Barnsdall oil and gas interests in the northern Pennsylvania fields. Bill Barnsdall was no more like Bide than he was like Thede. He possessed a more even temperament than either of his brothers; moved through life more quietly and yet he enjoyed the things that appealed to him. His hobby was the ownership and driving of good horses and his high class trotting stock became well known on the Grand Circuit as well as the half-mile harness circuits. Ill health put an end to this recreation and here he showed a marvelous moral courage. Practically condemned to death by some of the most noted specialists in the East, William Barnsdall went about his business and lived for many years after any of his physicians believed it possible. He had the will and courage to do so and it gave him a whimsical satisfaction to "fool the doctors." He was an almost constant sufferer during this long fight, so much so, in fact, that his whole face was softened and ennobled by it, but he had to yield at last and his death was regretted by a host of friends.

Big-Hearted Oil Men

All three brothers were men of large charity. No worthy cause brought to their attention was ever slighted and no less fortunate friend was permitted to suffer where any of them could help him. The Barnsdall boys were noted for this, and many stories of their great heartedness have been told.

Father's Notable Career

William Barnsdall, Sr., was born February 6, 1810, in Biggleswade, Bedfordshire, England. He learned the shoemaker's trade and after coming to the United States followed it in New York, Carlisle, Pa., and Titusville. When Colonel Drake drilled the first oil well in near Titusville in 1859, William Barnsdall forgot the old adage "shoemaker stick to thy last," and dropped his trade, went into the oil business and beat all others to the second oil well, which he drilled on the Parker farm.

It required three months' time to drill the well to its total depth, 112 feet. The well started off at 25 bbls. and as oil was selling at $10 per barrel it was a paying venture. Early in 1860 Mr. Barnsdall and others built the first oil region refinery, locating it on the Parker farm. He also drilled a 140-bbl. well on the Leslie farm, very near the original Drake well. He operated in several western Pennsylvania fields thereafter and was, as already mentioned, the first operator to develop an oil showing in the Bradford Field. Already he had, as early as 1862, drilled a hole with a spring pole outfit west of the then village of Bradford, which was abandoned at 200 feet, just 800 feet above a rich sand. At that early period no one knew much about oil or about drilling for it, and the idea of boring a hole to a depth of 1,000 feet was unthinkable. William Barnsdall lived to be an octogenarian and died an honored citizen of Titusville.

Theodore, Outstanding Figure

But when all is said about the other Barnsdalls, it was Theodore N. Barnsdall who was best known in the industry. Wherever oil was produced and American oil men were to be found the name of Theodore N. Barnsdall was familiar. Born in Titusville, on July 10, 1851, he passed his boyhood in his native town and when the Bradford Field was opened, joined the rush for the black sand region, as it was known. He plunged at once into the wild scramble for leases and the feverish drilling activity that characterized the development of the immense Bradford structure, and experienced the financial ups and downs which featured the development of so many early-day oil fields, where it was "chicken one day and feathers the next," as one veteran recently expressed it.

The writer as a boy, in Bradford, had often heard of Thede Barnsdall—always as a millionaire, or a big operator—or in some other way that gave the impression that Barnsdall was one of the favored of the sons of men, and it was with a shock one fine summer day in the middle 80's the boy heard the remark made by one man to another in front of the Bradford Oil Exchange: "Here comes Thede Barnsdall; he's broke."

Crossing the street came a man, almost a giant, about 35 years old, laughing, talking and gesticulating to a companion. From descriptions of the man, the boy

knew the powerful figure approaching was Barnsdall. Broke! Well, if Thede Barnsdall was broke, he did not seem to mind it. Still laughing and talking volubly he passed into the hallway of the Oil Exchange and then the man who had spoken continued. "The big fellow is broke but he won't be broke long. You can't keep that man down," and he was right. It was not long afterward that Barnsdall's daring operations became the talk of the oil country and his successes here and there became generally known. He began operating in West Virginia in 1887 and in 1890 was a big figure in the Indiana fields, and then he came to the Mid-Continent and acquired the famous Foster lease, which cover the whole 1,500,000 acres of the Osage Nation. This was perhaps the greatest concession ever granted to any oil man or oil company, but the Interior Department overruled the Osage Tribal Council and took most of it away from its owner, leaving the Barnsdall interests, however, a large and valuable block of choice productive leases.

A Wildcatter Extraordinary

There was one characteristic of Thede Barnsdall: He was primarily interested in the hunt for oil or gas. He was a born wildcatter—always out ahead. When he discovered oil or gas on a property he lost all interest in that property and was out ahead again in search for more hidden spots where oil or gas was deposited, but he had gathered about him a strong organization of men who followed after him and developed the properties he discovered and thus the Barnsdall Oil Co., the Union Natural Gas Corp., the Pittsburgh Oil & Gas Co., the Wildwood Oil Co., the Southern Oil Co., the Kansas Natural Gas Co., the Manufacturers Gas Co., of Bradford, the Potter Gas Co. and other concerns engaged in the oil and gas industry were known as Barnsdall companies. He went into California after getting what he was after in the Indian Territory, and had he lived perhaps no State where oil is believed to be would have missed a visit from the intrepid operator. He was president of several big companies at the time of his death, which occurred February 28, 1917

The death of Theodore N. Barnsdall unloosed a legion of anecdotes about the lion-hearted oil and gas man. His genius for discovery, his unusual personality, his charity, wit, humor, tremendous strength and untiring energy were dwelt upon. Many men knew him and thousands more heard of him and all spoke admiringly of him. He was a big man in every way. He entered the business in its formative stages and fought his upward battles when the fighting was hardest. It is impossible to mention big oil men at any stage of the industry without including Theodore N. Barnsdall, whose name is being perpetuated by the combination of the Barnsdall Corp. and the Waite Phillips Co. and again we say the new owners of this big combination could not have chosen a name more closely or honorably allied with the business over a long period.

TEXAS MOTOR REGISTRY

AUSTIN, Tex., Jan. 16.—Registrations in 1925 in Texas were: Passenger automobiles, 876,098; motor buses, 4,006; commercial cars, 87,537; trailers, 4,575; motorcycles, 2,760. Licenses were issued to 3,256 motor vehicle dealers and 13,077 chauffeurs. Cars transferred during the year numbered 234,307; the number of duplicates was 33,774. Income of the Highway Department from motor vehicle and other license fees was a little more than $10,000,000.

PAY NO GASOLINE TAX

The four States, Massachusetts, Illinois, New York and New Jersey, which have no gasoline tax, have registered more than 4,000,000 of the automobiles, motor trucks and buses in the United States. Thus there are 22 per cent of the motorists in the country who at present are not subject to a tax on gasoline in their own States.

DETERDING PREDICTS DOWNFALL OF SOVIET

Sir Henri Deterding, managing director of Royal Dutch Petroleum Co., has renewed his offensive against the Soviet, bringing pressure on other oil companies with a view of preventing their dealing in Russian oil. The Soviet press declared that Deterding did not worry about the rights of foreign property holders when he made the first purchase of Russian oil in 1922, saying: "Since our methods are distasteful to Sir Henri Deterding, it is our best tactics to strengthen them by every means at our disposal. Only then will the world's trusts be compelled to regulate their relations with us."

Sir Henri Deterding replied: "We admit the Soviet Government can sell oil a cent a gallon under the market price with profit because they have no royalties and taxes to pay in confiscated profits. My advice is that without credit you will never get along. Why not admit that you are at the end of your tether and that before many months you will come back to civilization? Admit, like Lenin, that Bolshevism does not work and that you have made a mistake. Bolshevism in Russia will be over before the end of this year."

NEW GATHERING LINES FOR TEXAS PACIFIC CO.

FORT WORTH, Tex., Jan. 16.—An extensive gathering system is to be built by the Texas Pacific Coal & Oil Co. in Stephens and Eastland Counties, and its production there is to be sent to the new refinery at Fort Worth over one of three existing pipe lines now running into this city from Mingus.

The T. P. interests recently bought the old Montrose refinery in Fort Worth which they are remodeling and putting into first-class shape. Their production in Stephens and Eastland Counties consists of about 2,500 bbls. a day. The capacity of the refinery will be 5,000 bbls. a day upon completion of the remodeling.

The gathering point for the system is to be at Mingus. The entire system will include close to 100 miles of pipe, but only about 90 miles of this has been contracted for.

A deal was worked out with the Humble Co. which has considerable pipe in the ground in the vicinity of the T. P. production, and a part of the system will probably take in Humble lines now in existence.

TULSA GEOLOGISTS ELECT

Arthur F. Truax of the Twin State Oil Co. has been chosen president for 1926 of the Tulsa Geological Society. Frank A. Herald of Herald Brothers is vice president, and Miss Dollie Radler of the Amerada Petroleum Corp., secretary-treasurer. The council is composed of the officers. W. B. Wilson, Gypsy Oil Co., retiring president; A. L. Beekly, Mid-Continent Petroleum Corp.; Harry Nowlan, consulting geologist, and Frank R. Clark, Mid-Kansas Oil & Gas Co. The next meeting will be January 23 and the program committee, composed of Messrs. Herald, A. W. Duston, Independent Oil & Gas Co., and A. A. Langworthy, are at work on the program.

A. I. M. M. E. ELECTION

The Mid-Continent section of the American Institute of Mining & Metallurgical Engineers has chosen the following officers for 1926: Frank A. Herald of Herald Brothers, chairman; Frank R. Clark, of Mid-Kansas Oil & Gas Co., vice chairman; H. C. George, University of Oklahoma, vice chairman; John L. Rich, Ottawa, Kan., vice chairman; A. F. Hinton, secretary-treasurer. The executive committee is composed of the officers and John M. Lovejoy, Amerada Petroleum Corp., retiring chairman; M. M. Valerius, president M. M. Valerious Oil & Gas Co.; L. G. Welsh, New England Oil & Pipe Line Co.; Burr McWhirt, Roxana Petroleum Corp., and J. E. Gardner, Gardner Petroleum Co.

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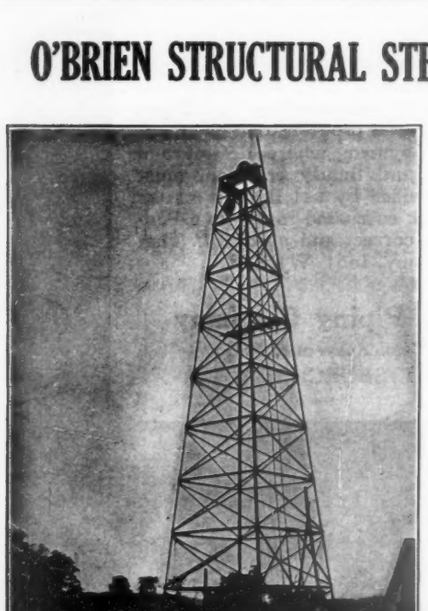

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SAN JUAN BASIN

(Continued from Page 60)

found to contain large pools of oil where it is covered by sufficient impervious material to retain the oil as this sand correlates with the Wall Creek sands of Wyoming and Montana and the highly productive Nacotoches sand of Texas and Louisiana. The oil found in such huge quantities on Rattlesnake, Hogback and Table Mesa domes comes from the Dakota group of sands, which correspond to the Muddy and Dakota of Wyoming, Montana and Colorado and the Woodbine of Texas.

Big gas wells are found on the various structures here, the largest wells being tapped on the Ute Pasture structure. So far 165,000,000 feet have been developed. In the Ute Pasture the Midwest, P. & R. and Gypsy have four wells that together are capable of producing 156,000,000 feet, the largest being the P. & R. well with 72,000,000 feet. Smaller wells are found at Aztec, Blanco and Bloomfield.

The wells on the Hogback flow by hydrostatic pressure, while those on the Rattlesnake Dome flow by gas pressure.

Caused by intense pressure and rapid evaporation the gas of the Rattlesnake leaves the mouth of the well at a temperature of 2 degrees above zero. The flow pipes are covered with a heavy frosting in the hottest days of summer and the drilling crews use the pipes for refrigerating purposes in the camps.

May Drill Deeper

Results in the Bloomfield district have so far proved discouraging as the water follows the oil so closely that at times hope is held out for the shallow sands to prove workable. The entrance of E. J. Miley, the California deep well driller, into that section may change the field into a deep producer. Mr. Miley will drill to 7,000 feet if necessary to tap the Dakota sands should the Picture Cliff sand prove unproductive. The latter sand is expected at about 1,800 to 1,900 feet. The Dakota at this point is said to be 6,500 feet deep.

Mr. Miley is the champion deep driller of all oil fields, having in 1925 drilled five wells each of them being more than a mile deep. His greatest achievement was the drilling of the Miley No. 6 Athens, where his drill tapped a 150-bbl. well at 7,591 feet, the deepest hole ever drilled by man as well as the deepest producer in existence. He also holds the record of having set the longest string of casing in the history of oil, 7,591 feet of 4¾-inch pipe. The Athens well is at the extreme south end of Figuroa Street, Los Angeles, Calif.

It is in the Picture Cliff sand that Bloomfield operators hope to make that section of the basin an oil producer.

Table Mesa

Next to the Hogback and Rattlesnake fields Table Mesa now seems to be the next production section of the great basin. Three wells have already been completed on that structure, two of which are producers. P. & R.'s No. 1, is being used as a water well, while Continental Nos. 2 and 3 are producing 336 and 355 bbls., respectively. Continental's No. 3 is cemented while its No. 4 is drilling at 500 feet.

Drilling costs in this field are not high, taking into consideration its inaccessibility. Most of the drilling done here has been with machines and it is only of late that standard tools have been moved in. Operators here say that an 800-foot hole can be drilled for about $4,500. Contracts are taken at $4 per foot. Two strings of casing are all that are required, the second string being used for production. The ground is easily worked and after spudding in the shallow wells are drilled in rapid time.

The one railroad serving this section of the State is the narrow gauge line of the D. & R. G. W., running south from Durango, Colo., a distance of 60 miles. Another narrow gauge runs from the latter point east to Alamosa, Colo., where it connects with a standard gauge road. The other outlet is by highway to Gallup, a distance of 120 miles, connecting with the main line of the Santa Fe Railroad. Operators use both north and south present outlets. The Weill road building into the valley at the present time will materially reduce transportation costs as well as giving the oil a cheaper outlet should production exceed the capacity of the pipe line promised by the Munoz-Continental interests by April 1.

Geologists Busy

Geologists and scouts making Farmington their headquarters are here in great numbers mapping and checking the numerous structures found in the basin. From present indications the field will be composed of both members of the Standard Oil group as well as scores of independent operators.

The town of Farmington is taking on the airs of real oil boom cities, hundreds of people come in weekly by stage and train, intent on becoming interested in the town and fields. The boom can be felt all the way up the valley from Aztec to Durango. There is a peculiar unanimity of interest shown by all the towns and when a worthy project to further this section of the State is presented Aztec and Durango join with Farmington to put it across. Aztec is near the Huntington Park well that is producing such high grade oil and has created a stir in the Blanco district, about 20 miles to the east. The Huntington Park well is below 1,600 feet and its initial production was around 32 bbls., it is now said to be doing about 6 bbls., though little effort is being made at this time to bring the oil above ground on account of shortage of storage. Several new tests are getting ready to spud in in that section and this summer it promises to be one of the busy spots of the basin.

Hogback Production

Present production of the Hogback Pool is as follows:

Midwest No. 1, 375 bbls., cemented off used as water well; No. 2, 1,276 bbls., first 24 hours; No. 3, plugged and abandoned; No. 4, water well, shut in; No. 5, 500 (estimated inital flow), doing 25 bbls. with 96 pounds back pressure; No. 6, plugged and abandoned; No. 7, 1,200 bbls.; No. 8, 354 bbls., sand just touched, probably as good as No. 7; No. 9, 1,200 bbls.; No. 10, 20 bbls., plugged and abandoned; No. 11, 102 bbls.; No. 12, 656 bbls. (small amount of water); total, 5,683 bbls.

Rattlesnake Pool

No. 1, plugged; No. 2, water well; No. 3, 30 bbls.; No. 4, 100 bbls.; No. 5, 300 bbls.; No. 6, 25 bbls.; No. 7, 804 bbls.; No. 8, 1,000 bbls.; No. 9, 480 bbls.; No. 10, dry hole; No. 11, 85 bbls. No. 12, 136 bbls.; No. 13, 80 bbls.; No. 17, 2,500 bbls. Total, 5,540 bbls.

Table Mesa

P. & R. No. 1, used as water well by Government; Continental Oil Co.'s No. 1, 336 bbls; No. 2, 350 bbls. Total, 686 bbls.

Continental Oil Co.'s No. 3, cementing; No. 4, drilling at 500 feet.

Drilling Report

Following is a drilling report of the basin as furnished by the State Oil and Gas Inspector, and the local representative of the United States Geological Survey: Union Oil & Mining, No. 1 Carl Lanier, Section 6, Township 29 North, Range 9 West, spudded; Union Oil & Mining, Pool No. 1, Section 13-29n-10w, rig; Huntington Park Oil Syndicate, Terwilliger No. 1, NW quarter, Section 8-30n-9w, spudded; W. M. Smith, NE quarter, Section 28-28n-10w, location; E. J. Miley, NE quarter, Section 25-28n-12w, location; Brown Brothers, Coal Creek Co. No. 1, Section 26-22n-12w, rig; Robbins' No. 1 Aztec district, Section 12-30n-11w, drilling at 150 feet; Congress No. 1, SW quarter, Section 34-29n-11w, drilling at 525 feet; Beardsley No. 1, NE quarter, Section 30-28n-11w, drilling at 1,030 feet; Bloomfield-Blanco No. 1, NW quarter NW quarter, Section 21-30-11w, completed 2,000,000-foot gasser; Melton No. 1, shut down at 1,795 feet, will complete to 2,000 feet; Oklahoma Oil & Gas, Red Mesa, drilling three wells; Childers Syndicate, Section 19-30-9w, drilling at 2,040 feet; Marvel Oil & Gas No. 1, Section 36-34-12w, shut down; Continental Oil Co., drilling at 2,670 feet at Gallina;

Frank Ellis, drilling at Azotea; Cross, Murlock & Gould No. 1, SE quarter Section 19-30n-12w, spudded; Portage Oil & Gas Co. No. 1, Section 24-30-13w, drilling at 400 feet; Rex Oil & Gas No. 1, Section 15-29n-7w, spudded; Knight Syndicate No. 1, Section 33-30n-7w, drilling at 900 feet; Davidson and others Hepp No. 1, Section 19-29n-8w, spudded; Continental Oil Co., Rattlesnake lease, No. 13, completed 90 bbls.; No. 14, rigging up; No. 17, drilling at 925 feet (deep test); Continental Oil Co., Table Mesa lease, No. 3, cemented at 1,315 feet; No. 4, drilling at 500 feet; Continental Oil Co., Tocito structure, rig enroute.

Among some of the major companies either operating in the basin or holding structures are the Midwest, Continental, Gypsy, E. J. Miley, Union of California, W. R. Childers, Carter, Pan American, Producers & Refiners, Standard of California and Texhoma.

The extraction of gasoline from the basin oils is well over 80 per cent. This contrasts with the average extraction from all oils in the United States for 1925 which was 24.6 per cent.

MEXICAN FIELDS

(Continued from Page 52)

the hole full at 2,275 feet. Cia. Pet. Maritima (Federal zone), No. 4-F Piedras is in shale at 800 feet. The Texas Co.'s No. 5 Isleta cemented 8-inch in hard gray shale and shells at 1,540 feet. Transcontinental Petroleum Co.'s No. 9 Piedras is spudding; its No. 3 Peralta is testing 8-inch cemented in gray lime at 1,600 feet, and its No. 33, Lot 1 Tanchicuin is rigging. U. S. Mex. Banana Co.'s No. 1 Herradura is in shale at 175 feet. Williamson and others' No. 1 Perez (Tampuche) cemented 8-inch in gray lime at 1,535 feet; his No. 1 Guzman (E. M.) is in gray lime at 2,105 feet.

Cacalilao

In the Cacalilao sector of the northern fields drilling operations follow: La Corona Petroleum Co.'s No. 176, Lot 4, is spudding; No. 177, same, is rigging. International Petroleum Co.'s operations in Lot 5: No. 244 is in gray lime at 1,880 feet; No. 245 is fishing in white lime at 2,105 feet; No. 252 is swabbing in gray lime at 2,130 feet; No. 253 is in gray lime, with the hole full, at 1,990 feet; No. 254 is in gray lime at 2,110 feet; No. 255 is fishing for a bit in white lime at 2,180 feet; No. 258 is in gray lime with a showing at 1,971 feet; No. 259 is in white lime at 2,245 feet; No. 260 is in gray lime with a showing at 1,960 feet, and No. 261 is already showing by heads in the San Felipe at the shallow depth of 1,240 feet. Mexican Sinclair Petroleum Corp.'s No. 89, Lot 3 Cacalilao is in blue shale at 330 feet. Rich Mex Oil Co.'s No. 120, Lot 1 Cacalilao, is in pink shale at 150 feet. Transcontinental Petroleum Corp.'s operations in Lot 4: No. 153 is in lime at 1,860 feet with the hole full of oil; No. 208 is in shale at 650 feet; No. 214 is in lime with the hole full at 1,950 feet; No. 237 is in gray lime at 1,565 feet; Nos. 241 and 251 are derricks. And in the Paciencia, just north of Cacalilao, Transcontinental's No. 55 is in lime at 2,040 feet; its No. 56 cemented 8-inch in the San Felipe at 1,255 feet.

South Fields

In the South Fields, Huasteca Petroleum Co.'s operations follow: No. 68-A Cerro Azul is in brown shale at 1,640 feet; No. 70 is in sandy brown lime at 2,039 feet. In Tierra Blanca, its No. 48 is in hard gray lime at 2,063 feet, and is preparing to drill four more tests there. Up in La Laja its No. 2 is in hard sandy gray shale at 3,807 feet; and in Casiano, its No. 15 is in shale and shells at 2,040 feet. Cortez Oil Corp.'s No. 6, Lot 148 Amatlan, is preparing to cement 8-inch at 2,030 feet in gray shale. International Petroleum Co.'s No. 7 Agua Nacida is fishing in gray lime at 4,327 feet. Mexican Gulf Oil Co.'s No. 55 Toteco is in sticky shale at 1,640 feet. The only change in the status of drilling tests of Mexican Eagle Oil Co. is in its No. 3 Mecapepec, near Furbero, which is in gray shale and shells at 760 feet. Transcontinental Petroleum Co.'s No. 1, Lot 16 Zacamixtle, is in the San Felipe at 2,250 feet.

Northern Miscellany

In the Ebano district of the northern fields, Mexican Petroleum Co.'s operations follow: No. 41 Chapacao is cleaning hole, gray lime, 1,287 feet; No. 44 is in gray lime at 1,690 feet; No. 48 cemented 8-inch at 1,115 feet, gray lime; No. 42 Chijol is in blue shale at 890 feet; No. 1 La Raya is fishing tools at 1,820 feet, gray lime; No. 65 La Dicha cemented 8-inch in gray lime at 1,160 feet; No. 2 Midway is in gray lime at 1,670 feet; No. 6 is in gray lime with a showing at 1,510 feet; and its No. 15 San Pedro is in gray shale at 210 feet.

In the Marland Field, Cia. Pet. Franco Espanola's No. 38 Limon is in broken lime at 1,750 feet; its No. 39 is in green lime at 200 feet; its No. 42 is in shale and gumbo at 345 feet, and the status of its other tests remains unchanged since the last report.

In Los Esteros, American International Fuel Co.'s No. 21 Los Esteros is in gray and white lime at 2,091 feet; and its No. 24 is in the same formation at 1,972 feet.

In Corcovado, La Corona Petroleum Co.'s No. 18, Lot 6, is in white lime at 2,060 feet; and its No. 19 is in the San Felipe at 1,020 feet. Transcontinental Petroleum Co.'s No. 24, Lot 6, is in lime at 2,430 feet; and its No. 26, same, cemented 8-inch in the San Felipe at 1,255 feet. Mexican Gulf Oil Co.'s No. 24 Chapacao-Corcovado cemented 8-inch in gray lime at 1,188 feet; its No. 26 is rigging and No. 28 is drilling in gray and brown lime at 1,901 feet.

In Topila, Ita Mex Oil Co.'s No. 20 La Mula is in gray lime at 2,110 feet. Mexican Fuel Co.'s No. 20 Santa Fe cemented 8-inch in gray lime at 1,600 feet.

National Lines, in its Cahapcao right of way, has its No. 29 in Tamasopa at 2,140 feet; its No. 30 is in gray shale at 210 feet. In the Limon on the Panuco River Federal zone, its No. 30 is waiting for standard tools at 1,567 feet; and its No. 31 is fishing for a drill stem at 890 feet in shells.

In Caracol, Veneable and others' No. 30 is drilling around 2,260 feet in gray lime.

LA.-ARKANSAS FIELDS

(Continued from Page 56)

are rigging up to drill No. 1 Pendarvie, Section 24-10-1e.

Keene & Woolf Oil Co. set 6-inch at 1,548 feet in No. 2 Urania, Section 19-10-2e; Sam Hunder is drilling at 1,506 feet in No. 1 Louisiana Central Lumber Co., Section 27-10-2e; A. B. Jones missed sand and is waiting orders at 1,589 feet in No. 1 Russell, Section 24-10-1e; H. M. Jones set 10-inch at 60 feet, 6-inch at 1,548 feet in No. 1 Russell, Section 25-10-1e.

Louisiana Oil & Refining Co. is coring at 1,514 feet in No. 2 Tremont, Section 29-10-2e; set 6-inch at 1,542 feet in No. 3 Tremont, Section 30-10-2e.

Natural Gas & Petroleum Co. set 10-inch at 60 feet, drilling at 1,500 feet in No. 2 Tullos, Section 25-10-1e.

Ohio Oil Co. is bailing to test in 2 feet of sand at 1,575 feet in No. 1 Urania, Section 24-10-1e, and has location for No. 2 Urania, same section.

Tullos and others have derrick up for No. 1 Miles, Section 25-10-1e.

Morehouse Parish

R. C. Boisseau and others topped lime at 2,438 feet, drilling in rock at 2,452 feet in No. 1 Sullivan, Section 11-21-7e, 10 miles east and a little north of Bastrop.

Natchitoches Parish

Amerada Petroleum Corp. topped chalk rock at 1,604 feet, drilling at 1,710 feet in No. 1 Wafer, Section 3-11-8.

Lincoln Parish

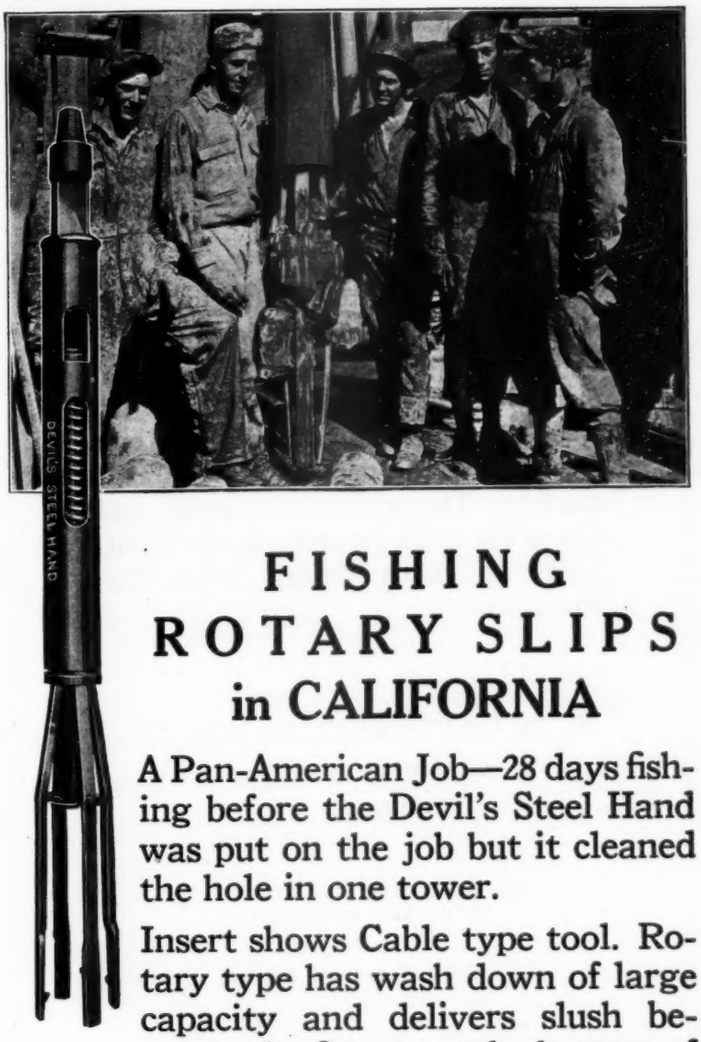
Buckley & Palmer are drilling at 220 feet in No. 1 Davis, Section 12-20-3w.

Ouachita Parish

Southern Carbon Co. is drilling at 1,510 feet in No. 47 fee, Section 35-19-4e.

Sabine Parish

L. M. Emlet is drilling at 3,700 feet



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in No 6 Bowman-Hicks Lumber Co., Section 8-7-12, 7 miles northwest of Many.

Union Parish

Arkansas Fuel Oil Co. is drilling at 514 feet in No. 1 Reeves, Section 14-20-1e, and United Carbon Co. is drilling at 2,069 feet in No. 1 Schwab, Section 2-20-3e.

Winn Parish

J. H. Hall is drilling at 835 feet in No. 1 Eagles, Section 6-10-2w, 3 miles south of Winnfield.

Cotton Valley District

Alabama Petroleum Co. is rigging up to drill No. A-3 Robins, Section 21-21-10. Fortuna Oil Co. is drilling at 4,060 feet in No. 1 Bible, Section 8-20-9, and fishing for liner at 2,552 feet in No. 1 Cox, Section 23-21-10.

Gulf Refining Co. set 6-inch at 2,505 feet in No. 1 R. H. Coyle, Section 15-21-10, and set 6-inch casing at 2,545 feet in No. 1 Marshall, Section 21-21-10.

Humble Oil & Refining Co. is drilling at 4,017 feet in No. 1 R. R. Cox, Section 22-21-10.

Ohio Oil Co. is rigging up to drill No. 35 Bodcau, Section 21-21-10; drilling in lime at 1,800 feet in No. 1 Riggins-Cox, same section; drilling at 3,253 feet in No. 1 W. Cox, Section 23-21-10; set 6-inch casing at 2,548 feet in No. 21 Gray, Section 26-21-10; moved rig and building derrick for No. 22 Gray, same section; drilling in lime rock at 3,885 feet in No. 1 A. J. Hodges, Section 23-21-10; waiting for standard rig at 2,593 feet in No. 2 E. W. Hodges, Section 15-21-10.

Palmer Corp. has well killed and is trying to cement bottom hole at 4,626 feet in No. 1 Davis, Section 23-21-10.

Victor Wenzell is drilling in rock at 1,880 feet in No. 1 Lunsford, Section 10-19-9.

Arkansas Wildcats

Ashley County—Rhodes & Kirker are drilling at 1,580 feet in No. 1 Bledsoe, Section 10-15-7, 6 miles south of Monticello.

Calhoun County—Magnolia Petroleum Co. is drilling at 3,578 feet in No. 1 Calion Lumber Co., Section 29-15-14, 6 miles north of Smackover production and the Southern Crude Oil Producing Co. is rigging up to drill No. 1 Freeman Smith Lumber Co., Section 19-14-15.

Cleveland County—Simms Oil Co. is drilling in broken lime at 3,394 feet in No. 1 Mosley, Section 19-10-11, 8 miles east of Fordyce.

Columbia County—Magnolia Petroleum Co. set 6-inch casing at 2,118 feet in No. 6 Rhinehart, Section 36-15-20.

Hempstead County—Burton and others are drilling in rock at 1,500 feet in No. 1 Garland, Section 23-10-25, 4 miles north of Washington. C. W. Robinson is drilling at 2,083 feet in No. 1 Toner, Section 29-12-23.

Lafayette County—Arkansas Fuel Oil Co. set 6-inch casing at 2,758 feet in No. 2 Allen, Section 19-19-24, 1 mile east of Bradley, and is drilling plug at 2,749 feet in No. 1 Red River Land Co., Section 19-19-24, 1 mile north of the Allen well. White and others topped Nacatoch sand at 1,570, cording at 1,577 feet in No. 1 Roper, Section 27-16-23.

Little River County—Mellick Oil Co. has shut down for fuel at 1,510 feet in No. 1 Hawkins, Section 10-11-31.

Miller County—Lenze and others are drilling at 650 feet in No. 1 Dale, Section 25-15-26.

Nevada County—Greason and others are bailing casing at 1,666 feet in No. 1 Grove, Section 2-14-21, and Smitherman-McDonald set 6-inch at 1,137 feet in No. 1 C. W. Waters, Section 1-14-21. Bemis and others have derrick up for No. 1 J. D. Ellis, Section 2-14-21.

CALIFORNIA FIELDS

(Continued from Page 52)

of a fair showing found at 1,770 feet, but it is doubtful if anything will be found. H. E. Becker's deep test just beyond the outer limits of the Summerland Field is being held up at 1,585 feet due to the loss of approximately 1,000 feet of drill pipe. The Marland is getting ready to resume work on No. 1 Williams in Santa Barbara County, Section 32-9-32, and new hole will be started at 2,644 feet. The Pyramid Oil Co. in Monterey County, Section 26-21-9, is still held up with a fishing job at 1,853 feet. The San Martinez Oil Co. will probably file an abandonment notice shortly on its Yolo County wildcat in Section 35-11-9, as 5,640 feet of hole has not shown anything of interest. The Standard has just leased some more land near Buttonwillow. The latest deal, which involves 360 acres in Section 25-28-23, calls for a one-eighth royalty and a yearly rental of $7.50 per acre until such time as actual work is undertaken.

The California State Mining Bureau issued permits this week for 29 new wills, as compared with 25 during the previous week. Of the 29 permits issued, 14 were for wells in the Long Beach Field, 2 at Rosecrans, 1 at Inglewood, 1 at Newport, 2 at Torrance, 1 at Santa Fe Springs, 1 at Ventura, 1 at Coalinga, 1 in Kern County and the balance scattered at several other points. There were 19 tests for water shut off made and 18 deepening or redrilling jobs listed. Twelve holes were abandoned during the week, 3 more than during the corresponding just preceding.

NEW OPERATIONS IN EAST CENTRAL TEXAS

CORSICANA, Tex., Jan. 16.—Several new operations were started in the East Central Texas area lately. In Hunt County, the Rycade Oil Co. has made a location for a test on the Holden farm, McAdams survey.

In Limestone County, Eisenmayer and others have a derrick up for No. 1 Hargrave on the Hargrave survey.

In Navarro County, the Homa Okla Oil Co. is drilling below 2,550 feet in No. 5 McGrow, Smith heirs survey, and Dixon and others have spudded in No. 1 Tucker on the Boren survey.

In Henderson County, the Atlantic Oil Producing Co.'s No. 1 H. L. Gamble, Williams survey, was abandoned in sandy shale at 3,103 feet. It got Austin chalk from 1,970 to 2,276 feet, but no showing of oil or gas.

In Limestone County, the Humble Oil & Refining Co.'s No. 4 Finch, McNulty survey, got 2,000,000 feet of gas at 642 feet, which will be used for field fuel.

In the Richland district, the Sun Oil Co. has abandoned No. 1 Swink, a shallow test, at 384 feet. Dixon and others' No. 1 Garrett, Boren survey, got sand at 363-70 feet. The well was put on the pump and produced 2 bbls.

SOUTHWEST TEXAS FIELDS

(Continued from Page 48)

rigging up on its No. 3 which is 300 feet west of No. 1 and Eastham & Tarver have started drilling their No. 2 Vio'a Wilson 300 feet west of their No. 1. Golden West's No. 1 Schmidt gauged 24 bbls. the first 24 hours with casing set at 901 feet and total depth of the hole 962 feet with the bottom 41 feet oil sand and the next 20 feet about a sandy shale, all carrying oil. Because of the loose sand in which the oil is found the wells improve with washing and it is expected the Golden West's first test will double in production in a few days. Gibson Oil Corp. has started drilling the No. 3 Viola Wilson, 300 feet south of its No. 1 and 300 feet east of its No. 2. Witherspoon Oil Co. is rigging up on its No. 1 Nixon, a mile to the southwest, on Survey 133 of the International-Great Northern Railroad.

Line to Ina Field

Both the Magnolia Petroleum Co. and the Southern Pacific Railroad have been known to inquire for prices on pipe line material for a line to the Ina Field which now consists of 10 producing wells. It is about 12 miles either way to the Southern Pacific north at Hondo, the county seat, or east to the International-Great Northern at Devine. Magnolia will start an immediate drilling campaign to develop its acreage much of which is proven territory.

Al Buchanan and others have started to rig up with heavy rotary in the northwest corner of Survey 528 in Medina County 150 feet each way from the cor-

ner. The well was started recently with a light rig and was first carried as Metzger and others. It is No. 1 Nixon. It is 4 miles southwest of the Ina Field, A half-mile west of Buchanan on the August Gerdes farm while drilling for a water well gas was encountered at 260 feet which caught fire and is still burning with no casing in the hole and making a flame 15 to 25 feet high, estimated at 50,000 cubic feet. Not even surface casing had been set. Medina Oil Co., 4 miles south of Hondo, in the No. 1 Taylor, had a little showing of oil at 316 feet. The oil Zerr test, a mile or so northwest of D'Hannis, in Medina, is about to resume operations after being shut down for more than a year.

Caldwell County

Gulf Production Co.'s No. 1 Canady in Caldwell County, 7 miles south of the Lytton Springs Field, at 1,931 feet is still in the Navarro and has not encountered the Austin chalk. Reiter-Foster's No. 1 Brown, a few miles northeast of Gulf, has spudded in and set surface casing. These wells are located on subsurface geology. Gulf's well is about a half-mile southeast of its No. 1 Magee, which hit the Austin chalk so low it was thought to have indicated a fault. No. 1 Canady is not looking very encouraging since it has not yet found the chalk but it may add to the stock of geological knowledge. It and the Reiter-Foster well are the most important at this time in Caldwell County.

Edwards County

X. K. Stout's No. 1 Peterson in Edwards County, is dri'ling at a little below 700 feet where it has set 8¼-inch casing and shut off some water. It is a Pennsylvanian lime test and will go deep. It is at present the on'y test in Edwards County though Gulf and others have been taking leases in that county.

Karnes County

Earl B. Reynolds has pulled the 5 3/16-inch casing in his No. 1 Butler in Karnes County but will not pull the 6⅝-inch. The 5 3/16-inch will be reset to the bottom at about 3,000 feet and recemented and another test made.

DeWitt County

Cuero Oil & Gas Co. has set casing in its No. 1 Holzappel and is preparing to test at about 2,600 feet after plugging back from below 3,000 feet.

Kendall County

J. H. Allen and others' No. 1 Otto Rahm, in Kendall County, is shut down at 1,320 feet.

Medina County

Henderson & Holder's No. 1 Adams, in Medina County, a few miles south of the new shallow Ina Field, has spudded in. It is to be a deep test and 8-inch casing will be set at about 1,000 feet.

Bexar County

Milham Corp.'s No. 1 Eastwood in Somerset shallow field has passed the 1-mile point in the deepest test thus far made in Bexar County. It is down 5,331 feet and in a sandy lime. Utah Texas Oil Co. found 26 feet of sand saturated with oil at a depth of 864 feet in its No. 1 Ivan Vick in the southern part part of Bexar County and the operators believe it is sufficient to make a commercial well. Under the sand was gumbo and drilling was continued in the expectation of finding more sand. At 1,200 feet it seemed to be going into another showing. The well is 10 miles east of the nearest production in the Somerset Field where the production is had at 500 feet greater depth.

Gonzales County

F. E. Rue's No. 1 McVea in the northern part of Gonzales County a little north of the town of Waelder is at 790 feet where it is taking a core on account of the showing of gas. The well is coring at unusually frequent intervals in order to log more perfectly the formations. Joe Bruner in a test 2 miles to the east and L. L. Jones in a test 3 miles south are each shut down waiting for casing. Jones is at 820 feet and has a showing of oil.

Bastrop County

Johnson Brothers are rigging up on the Trigg farm in Bastrop County in the southwestern corner of the county. It is to be another test to the Edwards but in hopes of finding the Serpentine above the Edwards. Humble Oil Co. in northeastern Travis County is drilling at 1,040 feet in its No. 1 Lockwood and has not encountered the Serpentine. A small amount of Serpentine was found in No. 1 Giese, its first test a little to the west of the present test, and Serpentine was looked for a little higher in the Lockwood test. Coyle-Concord in the No. 1 Heywood in Bastrop County is fishing at 2,900 feet. The contract depth of the well is 3,000 feet and thus far it hasn't anything much in its favor.

Three Rivers District

George B. Pickett is drilling at 2,350 feet in his No. 1 West in Live Oak County a little south of Three Rivers, and is in hard rock. Live Oak Basin Oil Co. (Lobo) composed of Paul's Valley, Okla., people which drilled in a number of gas wells in Live Oak County a little east of Three Rivers a few years ago have cleaned out the No. 1 Reagan and brought it back to a volume of 2,000,000 feet and a pressure of 70 pounds. It is again supplying the town of Three Rivers with oil. Walton's No. 1 Nave, north of the town of Three Rivers, a shallow gasser, has come back up in pressure to 155 pounds and the Southern Gas Co.'s No. 1 Nave nearby has come back to a pressure of 118 pounds. Both are shallow. Glassco and others have made a location midway between the No. 1 Harris and the No. 1 Tips, located a mile west of Three Rivers and will spud in at once on a new test. The No. 1 Harris is a shallow gasser and has been supplying Three Rivers with considerable gas ever since it was brought in early last summer.

Starr County

Rutledge and others' No. 1 Kelsey, in Starr County, a little north of Rio Grande City, is drilling at 1,250 feet.

Lytton Springs

George M. Ball's two wells in the east edge of the Lytton Springs Field that were drilled several weeks ago with showings of oil but which failed to make producers at the time have been found standing in oil. No. 2 Hemphill was measured and found to have 300 feet of oil in the hole. No. 1 is to be measured this week. Due to the deceptive nature of the Serpentine in that field some believe there is still a chance to make wells of them. Bright Oil Co., which got a good showing of oil on the Robert Gwinn about three months ago but lost the hole with a fishing job, is about to start another test. The well is farther south than any producer or any well that has had a showing in the Lytton Springs Field. The field has extended somewhat to it since it had its showing.

Milam County

Hirt-McDermott are investigating the proposition of putting in a casinghead gasoline p'ant in the Rockdale shallow field in Milam County and have been in consultation with the Kent-Middleton Co. It is estimated that about 1,000,000 feet of gas is wasted a day in the field and the gas is said to carry 4 gallons per 1,000 feet. The proposition is to extract the gasoline and utilize the gas for domestic purposes in Rockdale.

The Ellison Co. has built a derrick on the E. T. White farm, just outside the city limits of Rockdale on the north and adjoining the J. P. Kevil farm on which Ellison has one producer. Gamble, Kent & Middleton's No. 4 Strelsky has been completed and is good for 20 bbls. Clear Lake Oil Co. has purchased a 10-acre lease out of the Coulter land from Carl Fogle in the Rockdale Field and W. A. Jones has purchased, 4 miles north in the Minerva Field, a 105-acre lease out of the George Banzhof and Hood Caldwell farms and will drill it. Birdwell & Pamplin has purchased a 70-acre lease out of the Strelsky farm in the northeast part of the Rockdale Field.

Glass Brothers' No. 1 Holliman, a deep test 6 miles south of the Rockdale shallow field, is drilling at 2,200 feet and the Union Production & Power Co. in a shallow test on the Holliman land, 6 miles northeast of the field is drilling at 300 feet. At 1,754 feet there was a showing in the Glass well that might possibly make a well. The Union Production test is an effort to commercialize a shallow showing that has been found in other wells in that district but never completed. It expects to get the production at around 650 feet or less.

Lytton Springs Bulletin

University of Texas Bulletin No. 2539 has just been issued by the Bureau of Economic Geology of the State university and covers the Lytton Springs (Lockhart) Field. It was prepared by H. P. Bybee and R. T. Short and is a 75-page bulletin giving a vast amount of information on the Lytton Springs Field. The field, due to its being close to the town of Lockhart in Caldwell County, was called the Lockhart Field by many. The University cal's it the Lytton Springs Field and for that reason the public generally as well as the oil industry at large wi'l probably accept the name as final and official.

According to the Bulletin the field covers 1,360 acres. The bulletin was dated October 15, 1925, and the manuscript was submitted in August and since that time the field has extended somewhat. Since the little Thrall Field in Williamson County and the Lytton Springs Field in Caldwell are the only ones producing from the Serpentine formation which is of volanic origin the bu'letin will be of great interest to oil men. Especially is this true when a belt about 350 miles long beginning with Limestone County on the north with its Mexia Field and extending southwest to San Antonio and then west to the Rio Grande is mapped in the bulletin as being a territory where other beds of Serpentine are most likely to occur. The Serpentine is described as of volcanic or igneous origin and hence has no place in the regular geological column. Throughout this belt it adds one more chance of the wildcatter picking up production.

CANADIAN FIELDS

(Continued from Page 42)

and tentative arrangements have been already made for marketing the production if gas is encountered in commercial quantities. As soon as the Irma well is completed, Mr. Credille expects to start drilling a test for the Anglo-Alberta Oi's, Ltd., on the legal subdivision cornering the British Petroleums' No. 3-B.

Wainwright Field

At Wainwright the Interior Oil Co. was drilling up until the Christmas holidays on the old Wainwright Oil Producers Syndicate test, Section 36-44-7w4. The well, which has been put down with a standard outfit, is reported around the 1,500-foot level and the company expects to have it completed early in the spring. Western Consolidated Oils, Ltd., Section 20-45-6w4, south of the British Petroleums group of wells, are reported to be replacing the standard outfit with a rotary, and expect to finish their test in the spring. It is understood that completing of this well is being largely financed by British Columbia capital.

The Dome Oil Co. of Wainwright has purchased land in the Wainwright Field and will drill on legal subdisivion 7, Section 31-45-6w4, the location being about 300 feet from British Petroleums No. 5 location. A petroleum engineer is at present securing a drilling outfit in Los Angeles and it is hoped to spud in early in April. Phoenix Petroleum's Ltd. will also start a new test, the location being made for the company by Dr. John A. Allan, geologist of the University of Alberta, on Section 29-47-9w4.

In the Ontario fields, the Dominion Natural Gas Co.'s No. 8 in the new Courtland gas field, Norfolk County, has finished a dry hole, and is being abandoned. The Dominion is reported to be making two new locations in this field. The laying of the new gas line to deliver the production of the Medina Natural Gas Co. wells to the Central Pipe Line Co. is being finished this week.

GULF COAST

(Continued from Page 46)

The Pure Oil Co.'s No. 2 Sallier is idle at 4,490 feet. Earle Pool's No. 1 Castle is idle at 2,070 feet. The Union Sulphur Co. is starting No. 1 Vincent.

In the Vinton Pool, the Gulf Refining Co.'s No. 38 Star is below 3,400 feet. No. 3 Gray is rigging with a derrick standing for No. 65 G. N. G. The Texas Co.'s No. 1-A Gray is at 3,255 feet and No. 1-C Gray is below 2,800 feet. The Vinton Petroleum Co.'s No. 17 Rescue is drilling at 1,010 feet and No. 52 Rescue below 2,235 feet. No. 7 Vincent is rigging. The Edgerly Petroleum Co.'s No. 6 Vincent is at 3,135 feet. Marrs McLean is rigging No. 9 Gray, as is Wilson & Broach No. 4 Parks.

In the Jennings Pool, the Gulf Refining Co.'s No. 38 Jennings-Clement is drilling around 1,765 feet. The Texas Co.'s No. 1 Latrielle is at 2,000 feet. The Jennings Petroleum Co. is rigging No. 1 S. F. S. and F. I. Getty's No. 2 Clement is drilling around 3,010 feet.

In the Edgerly Pool, the Gulf Refining Co.'s No. 40 Bright-Penn is drilling below 1,565 feet.

In Cameron Parish at Hackberry Island Dome, the Yount-Lee Oil Co.'s No. 5 State land is below 3,900 feet. The Pure Oil Co.'s No. 2 Sweet Lake is around 4,720 feet.

In St. Mary Parish, the Rio Bravo Oil Co.'s No. 2 Glenwood is rigging. Leland and others' No. 1 Caffery, Cote Blanche Island, is shut down at 1,640 feet.

Operations in the Pools

In the Saratoga Pool in Hardin County, Paggi Oil Co.'s No. 8 Lewis is drilling deeper at 1,516 feet. The San Bernard Oil Co. is rigging No. 19 Hooks and the Rio Bravo Oil Co. No. 3 Fountain. The Vacuum Oil Co. is rigging No. 3 Teel southwest of the pool.

In the Batson Pool, The Texas Co.'s No. 1 La Jarza on the east side, is drilling around 3,810 feet. The Kirby-Capitol joint No. 4 Hodges is rigging on the north side. The Sun Oil Co.'s No. 75 Hooks is deepening around 3,615 feet and the Navarro Oil Co.'s No. 1 Autrey is around 1,433 feet. The Gulf Production Co.'s No. 164 Wing is at 1,367 feet. In the old section, S. R. Buchanan's No. 86 Milhome is at 875 feet. The Ada Belle Oil Co.'s No. 104 Lovett is drilling around 900 feet. The Acorn Oil Co.'s No. 58 Paraffin is idle. The Deutser Oil Co.'s No. 14 Trustee is around 865 feet.

In the Sour Lake Pool, the Yount-Lee Oil Co.'s No. 2 Gilbert is showing oil at 4,200 feet. The Lake Graham Oil Co.'s No. 18 Bashara is idle with the casing collapsed around 3,725 feet. T. B. Barclay's No. 1 Bailey is rigging. The Gulf Production Co.'s No. 60 Tarver-Hardin is deepening.

Harris County Pools

The Sun Oil Co.'s No. 1 Bender at Humble is around 3,250 feet and The Texas Co.'s No. 1 fee is below 2,100 feet.

At Pierce Junction, the Gulf Production Co.'s No. 15 Taylor is below 2,765 feet and the Navarro Oil Co.'s No. 1 Cain is drilling around 2,000 feet. These are on the east side. On the north side, the Rio Bravo Oil Co.'s No. 2-P Settegast is below 3,700 feet.

In the Goose Creek Pool, the Humble Oil & Refining Co.'s No. 1 Smith is at 4,780 feet and No. 66 Smith is below 2,345 feet. No. 23 Peninsula is rigging and a derrick is standing for No. 15 Smith. The Gulf Production Co.'s No. 11 Chapman-Bryan is drilling around 4,233 feet. No. 10-A Wright is at 2,910 feet. No. 12 John Galliard fee is fishing at 2,265 feet and No. 23 State land in the bay is rigging. No. 21 Beaumont is also rigging. The Gulf Coast-Crown Central joint No. 9 Galliard is working over, as is the Sun Oil Co.'s No. 15 Bartlett-Smith.

Fort Bend County Pools

At Blue Ridge, the Gulf Production Co.'s No. 13-C Blakely is drilling around 3,155 feet and No. 5 Luscher is deepening at 4,065 feet.

At Big Creek, the Gulf Production Co.'s No. 26 Davis is drilling around 3,475 feet and No. 27 Davis is below 1,200 feet. The Union Sulphur Co.'s No. 42 Davis is a sulphur test.

Brazoria County Pools

At West Columbia, the Humble Oil & Refining Co.'s No. 2 Wilson and No. 1 LeRues are rigging up. The Hyde

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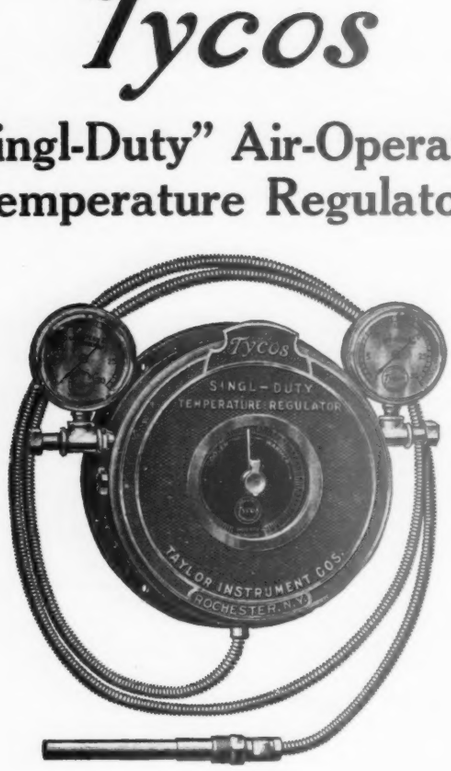

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Production Co. is rigging No. 1 Masterson. The Texas Co. is drilling No. 22 Arnold around 975 feet and the Gulf Production Co. is working over No. 3 Underwood.

Liberty County Pools

Only one rig is running in the South Liberty Pool, the East Texas Oil Co. drilling No. 1 Le Cour at 2,075 feet.

In the Hull Pool, the Republic Production Co.-Houston Oil Co.'s joint No. 44 Dolbear and No. 59 Dolbear are both working over. No. 68 is drilling around 2,800 feet. The Gulf Production Co.'s No. 60 Phoenix is drilling around 3,800 feet. No. 62 is at 2,845 feet. No. 63 is below 3,410 feet. No. 21 Morris-Phillips is at 3,233 feet. No. 16 Scarborough is at 4,450 feet. No. 15 Baldwin is around 3,100 feet. No. 5 Thomas is at 2,355 feet. The Houston Production Co.'s No. 10 Barngrover is working over. The Sun Oil Co.'s No. 8 Carr is drilling around 2,615 feet. The Higgins Oil & Fuel Co.'s No. 5 Merchant is working over and the Yount-Lee Oil Co.'s No. 13 Merchant is at 4,312 feet.

Spindletop and Orange

At Spindletop, the Gulf Production Co.'s No. 209 Gladys is rigging. The Baker Oil Co.'s No. 14 Trembly is at 967 feet. Porch & Telshaw's No. 2 Trembly is below 655 feet.

On the Chesson tract in the center of the Orange Pool where deep sand wells have been developed recently, the Humble Oil & Refining Co.'s No. 25-A is rigging around 4,455 feet. No. 26-B is around 3,144 feet. The Continental Oil Co.'s No. 7 Chesson is deepening at 2,766 feet and No. 10 around 3,800 feet. The Gulf Production Co.'s No. 1-A Chesson is around 3,544 feet.

The Edgerly Petroleum Co.'s No. 11 Carbello is drilling around 3,500 feet. The Kishi Development Co.'s No. 7 McGuire is at 4,809 feet. The Orange Petroleum Co.'s No. 1 Williams is at 2,235 feet. The Supreme Oil Co.'s No. 4 Jackson is drilling around 4,707 feet. The Sun Oil Co. is drilling two of the deepest tests in the pool. No. 3 Belleisle is below 5,230 feet and No. 1 Johnson is around 5,165 feet. In addition the company is drilling No. 1 Caren at 3,332 feet. The Gulf Coast Oil Co.'s No. 1 Leon is deepening at 3,455 feet. The Gulf Production Co.'s No. 8 Hager fee is drilling below 3,465 feet and No. 20 Hager fee is around 2,980 feet. No. 2 Kishi-Lang-B is around 2,143 feet and No. 8-B is rigging. The Humble Co.'s No. 1 Barber south of production is drilling around 4,765 feet. The Sinclair Oil & Gas Co.'s No. 1 Turner, one-half mile south of the pool is around 5,500 feet.

Miscellaneous Tests

Large tracts of acreage in the southern parishes of Louisiana are being explored with the seismograph and torsional balance systems endeavoring to locate saline domes.

In Liberty County, Texas, the Humble Oil & Refining Co.'s No. 1 Welder, across the Trinity River from the South Liberty Pool, is drilling around 3,533 feet. The Harrison Oil Co. is starting west of the old Dayton Pool.

In Jefferson County, at Big Hill, the Houston Oil Co.'s No. 4 Sun-Davis is drilling around 3,200 feet. No. 1 Sun-Dyson is at 2,810 feet. The Gulf Production Co.'s No. 5 Thomas at Fannette is around 1,315 feet, with a location for No. 6.

In Orange County, the Republic Production Co.'s No. 1 French, in the northern part of the county, is drilling around 2,235 feet.

In Harris County, Armstrong and others' No. 1 near the San Jacinto battlefield is around 1,350 feet. The Texas Co.'s No. 6 Warren at Hockley is around 2,150 feet and No. 4 Mack Miller, east of Green's Bayou, is drilling around 3,980 feet. Brane and others' No. 2 Hunt, north of the Goose Creek Pool, is idle at 1,560 feet. Braine and associates are rigging No. 1 Koppe, near Cross Timbers.

In Matagorda County, the Sheperd Dome Oil Co.'s No. 2 Hawkins is at 2,904 feet. The Gulf Production Co. is starting No. 3 Craig off the Hawkins Dome.

In Wharton County, J. W. Rich and the Humphrey Corp.'s No. 1 Dennis, 12 miles west of Boling Dome, is around 600 feet.

The Roxana Petroleum Corp.'s No. 1 Allen ranch in the southern part of Brazoria County is shut down.

In Chambers County, W. C. Moore's No. 2 Blenke is around 850 feet. C. T. Rucker's No. 1 Fisher and No. 1 Lawrence, east of Cedar Bayou, are both idle.

In Refugio County, the Houston Oil Co.'s No. 1 Thomas O'Connor is around 500 feet and same company's No. 1 O'Connor in Victoria County is around 565 feet.

In Colorado County, Drumgould and others' No. 1 Cutler, near Eagle Lake, is drilling around 1,550 feet.

Duval County Well Quits Flowing

The Humble Oil & Refining Co.'s No. 4 Walsh, the deep sand well opened on the southeast side of the Piedras Pintas Pool in Duval County, sanded and stopped flowing early Saturday morning. It was flowing 1,700 bbls. with a choker on. The well came in December 21 last and has been flowing since from 3,620 feet. The oil is 42 gravity and is being shipped out in tank cars.

The Humble Co. has a location for No. 5 Walsh, south of the producer, and the Grayburg Oil Co. has a location on 160 acres to the north.

NEW MEXICO FIELDS

(Continued from Page 48)

looked for and that the Santa Fe would do everything in its power to further the development of this field.

Drilling Report

George Bobb's No. 3 on the Thompson permit, Section 18-17-28, drilling; Beeson's No. 1 in SE cor. Section 33-17-30, fishing; No. 2, Section 18-18-28, location made; Cheesman, Ballard & Clark's No. 1 Massey permit, Section 21-18-29, drilling at 2,640 feet; Colorado Drilling Co.'s No. 1 Irvin, Section 8-16-28, shut down at 800 feet; Cook Ironsides and others' Section 10-20-29, shut down at 800 feet; Compton's No. 1, Section 16-18-28, drilling below 3,260 feet; Danciger Oil & Refining Co.'s No. 1 Bookman, Section 4-18-28, cleaning out after shot; Empire Gas & Fuel Co., Section 31-24-27, drilling; Flynn, Welch & Yates' No. 30, Section 21-18-28, location made; No. 33, Section 3-18-28, drilling at 1,900 feet; No. 35, Section 29-18-28, on production; No. 37, in Section 17-18-28, on production; No. 38, Section 3-18-28, drilling at 200 feet; Holeman, Riter's No. 1, Section 18-18-28, drilling below 1,880 feet; Hope Development Co.'s No. 1 Fite, Section 4-18-23, awaiting casing at 1,130 feet; Hassenfuse, Donley and Compton's No. 1, SE cor. SE SW, Section 16-18-28, drilling at 1,250 feet; Lane and others' Section 22-16-28, drilling below 3,445 feet; Levers, Carper's No. 2, Section 3-18-28, drilling below 1,100 feet; Mesa Oil Co.'s No. 1, Section 4-19-28, preparing to make a deep test of this well which was drilled to 2,500 feet; McFrederick Eppenauer's No. 1, Section 15-19-25, drilling below 2,100 feet; Ohio Oil Co.'s No. 1, Tracey permit, Section 34-21-26, waiting for cement to set; No. 1 McCullough permit, Section 1-20-27, abandoned; No. 6 Toomie Allen lease, Section 28-18-28, drilling at 2,900 feet; No. 1 Keiser, Section 16-18-28, drilling below 2,575 feet; No. 4 on the C. J. W. lease, Section 17-18-28, on production; No. 7, New State lease, Section 4-18-28, drilling at 1,200 feet; No. 8, New State lease, Section 4-18-28, drilling at 1,700 feet; No. 9, New State lease, Section 4-18-28, drilling at 900 feet; Snowden, McSweeney's No. 1, McNutt permit, Section 4-21-30, waiting for cement to set at 4,317 feet; No. 2 NW of Section 33-18-28, no report; Smith, McClure & Bixler and others' No. 1 White test, SE NW, Section 9-17-23, drilling below 200 feet; The Texas Co.'s No. 4, Section 5-18-28, drilling below 2,630 feet; Twin Lakes Oil Co.'s No. 6, SW Section 28-18-28, cleaning out after shot; V. K. F. Oil Co.'s No. 6, Section 17-18-28, on production; No. 7, Section 17-18-28, loca-

tion made; Williams Petroleum Co.'s No. 3 in the SW NW Section 17-18-28, on production; No. 4, same section, drilling below 1,200 feet.

Chaves County

Arkansas Gas & Fuel Co.'s No. 1, Manning Dome, Section 14-15-17, drilling below 2,875 feet; Colorado Gas & Fuel Co., Section 16-8-28, shut down at 3,600 feet; Coontail's No. 1, Section 28-15-23, shut down; Dresser's No. 1, Section 24-10-27, drilling below 3,400 feet; Southern Exploration Co., Section 15-15-29, drilling at 2,800 feet; Shaeffer Oil Co.'s No. 1, Section 25-13-26, no report; White Oil Co.'s No. 1 Franks, Section 25-10-26, drilling; New State Petroleum Co., Section 27-10-26, no report; Neal and others' Section 25-9-25, no report; Lewis and others' Section 13-8-24, shut down.

Lea County

Covert and others, Section 15-21-33, shut down at 500 feet; Maljamar Oil & Gas Corp.'s No. 1, Government permit, NE, Section 21-17-32, setting 12½-inch casing at 800 feet; W. A. Wyatt's No. 1, Section 19-16-34, shut down; Ross' No. 1, Section 27-10-32, no report.

KANSAS FIELDS

(Continued from Page 44

Section 28-27-7. John Rodgers has spudded and shut down No. 8, CWL SW NW, Section 29-26-8. Eddy Farr has spudded and shut down No. 1, SW cor. SE SE, Section 13-28-6. Ballierre and others have a dry hole in No. 1, NE cor. SW, Section 1-28-7, which is abandoned at 3,251 feet. Amerada Petroleum Co. and others have spudded No. 1, SW cor. SE, Section 15-28-7. Flack and others have a rig on the ground for No. 1 Galloway, SW cor. SW, Section 4-29-6. H. Garden has built the rig for No. 1 Deichman, NW cor. NW, Section 23-29-6.

Elk County

Kansas Central Oil Co. is rigging up No. 1 Lawyer, CEL NE SW, Section 16-31-9. Neeley Oil Co. has spudded No. 1, SE cor. SE, Section 20-31-10. Theta Oil Co. has completed No. 4, SE cor. SW SW, Section 23-31-10. Sand was 1,304-38 feet and the well is good for 25 bbls. after a shot of 70 quarts.

Woodson County

Powell and others have abandoned No. 1, SE cor. NW, Section 28-25-15, at 1,530 feet. Woods & Alder are drilling at 450 feet in No. 1, SW cor. NW SW, Section 16-25-16.

Greenwood County

Mission Oil Co. has the rig up for No. 8 Dales, SW cor. NW, Section 25-23-8. Phillips Petroleum Co.'s No. 1, NE cor. SE SE, Section 26-23-8, is making 150 bbls. from sand 2,520-45 feet after a shot of 150 quarts. Greenland Oil Co.'s No. 13, SW cor. SE SE, Section 10-23-9, had sand 2,303-40 feet and was shot with 120 quarts. It is making 150 bbls. Empire Gas & Fuel Co. has the rig up for No. 3 Morris, SW cor. SE NW, Section 19-23-9. Davis and others have spudded No. 2, NE cor. NW NW, Section 22-23-9. Pure Oil Co. has the rig up for No. 6 Mason, CWL NW NW, Section 26-23-10. In the Virgil Pool, the Mid-Continent Petroleum Co. has a dry hole at 1,620 feet in No. 7, C SW, Section 15-23-13. In the Sallyards Pool, the Mid-Kansas Oil Co. is drilling at 450 feet in No. 6, SW cor. NW, Section 20-25-9.

The Lenord Petroleum Co. has a dry hole in the Agard Pool, in No. 4, SE cor. SW, Section 23-24-9, which is being plugged from 2,200 feet. Sullivan and others' No. 2, NW cor. NE SW, Section 6-24-11, is drilling at 500 feet. Ward McGinnis has rigs on the ground for No. 2 Wiggins, SW cor. NE, Section 30-24-11, and for No. 3 Wiggins, NE cor. NE SW, Section 30-24-11. John Stark has a rig on the ground for No. 1 Ott, NW cor. SW, Section 19-24-12. Roth & Faurot have spudded No. 1 Haynes, SE cor. SW NE, Section 35-25-11, and completed a twin well in No. 1-A, NW cor. SW, Section 36-25-11. Sand was 582-94 feet and the well shut in with 1,000,000 feet of gas. Prairie Oil & Gas Co.'s No. 3, NE cor. NW SE, Section 16-24-13, is spudded. W. O. Larue has a dry hole in No. 1, NW cor. SW, Section 3-26-12, which is dry and abandoned at 1,715 feet.

Davis and others have spudded No. 1, SE cor. NE SW, Section 24-23-8. Empire Gas & Fuel Co. has completed No. 7 Scott, CEL NE SE, Section 24-23-8. Sand was 2,552-96 feet and the well is making 25 bbls. after a shot of 60 quarts. Greenland Oil Co. and Robertson have a well in No. 9, NW cor. NE, Section 25-23-8, which made 150 bbls. after a shot of 60 quarts in sand 2,563-97 feet. Tidal Oil Co. and Jones are drilling at 550 feet in No. 2, NW cor. SW NE, Section 3-22-10. Transcontinental Oil Co. has the rig on the ground for No. 1 Pixlee, NW cor. SW NE, Section 3-22-10. Empire Gas & Fuel Co.'s No. 1, NE cor. NW, Section 6-22-10, swabbed 643 bbls. from sand 2,232-57 feet after a 60-quart shot. It is not completed. Kansas Oil Co. has the rig on the ground for No. 1 Aytec, NW cor. NE, Section 6-22-10. Phillips Petroleum Co. has a failure at 2,414 feet in No. 5, NW cor. SW SW, Section 12-22-10.

Syndicate Oil Co.'s No. 1, SE cor. NE NW, Section 12-22-10, swabbed 30 bbls. an hour from sand 2,046-2,112 feet after being given a shot of 240 quarts. Theta Oil Co. has completed No. 15, SE cor. NW NE, Section 17-22-10. Sand was 2,257-94 feet and the well is making 100 bbls. after a shot of 60 quarts. Sinclair Oil & Gas Co. has spudded No. 33 Browning, SW cor. SE NW, Section 20-22-10, and the rig is built for No. 35 Browning, SE cor. NW NW, Section 20-22-10. Titus and others' No. 6, SE cor. SW NW, Section 29-22-10, had sand 2,385-2,432 feet and made 150 bbls. after a shot of 140 quarts.

Empire Gas & Fuel Co. has the rig on the ground for No. 9 Kipfer, SW cor. NE SE, Section 11-22-11; and No. 2 Cravett, NE cor. NE, Section 14-22-11, is drilling at 450 feet. Mid-Continent Petroleum Co. has completed No. 5, NW cor. SE SW, Section 18-22-11. Sand was 2,075-2,106 feet and the well was shot with 60 quarts and is making 35 bbls, the rig is on the ground for No. 6 Clepton, CSL NE SW, Section 18-22-11. Simmons & Burk have spudded No. 3, CEL NE NW, Section 19-22-11. Phillips Petroleum Co. has a dry hole at 2,095 feet in No. 5, NW cor. SE NE, Section 30-22-11.

Lyon County

Edwards & Buck have spudded No. 1, NE cor. NW, Section 14-21-10. Transcontinental Oil Co. has the rig up for No. 2 Aytec, SE cor. SW, Section 30-21-10. Ritchie & Moore have spudded No. 5, SE cor. SW, Section 34-21-10. Titus and others have built the rig for No. 1 Pixlee, SW cor. NW SE, Section 34-21-10. White Eagle Oil Co. has spudded No. 1, SW cor. SE, Section 34-21-10. Phillips Petroleum Co. has a dry hole at 2,457 feet in No. 1, SW cor. NE, Section 33-21-12. Mason and others have rigged up No. 1 Kensel, SW cor. NW, Section 26-20-13. Ballierre and others have a rig up for No. 1 Carson, SW cor. NE, Section 18-21-13.

Kingman County

Ellison & Fitzwilliams have built the rig for No. 1 Watkins, SE cor. NW NW, Section 25-27-7w.

Sumner County

Marland Oil Co. has the rig up for No. 1 Coppenhager, SW cor. NW, Section 24-34-2.

Phillips Petroleum Co. has built the rig for No. 3 Holt, NW cor. NE NE, Section 24-33-2. Prairie Oil & Gas Co. has a failure in No. 1, CNL SW, Section 34-34-2, which is dry and abandoned at 3,762 feet.

Near New Bedford, the Champlin Refining Co. has completed two deep dry holes in No. 1, SE cor. SW SE, Section 9-30-1w, which is abandoned at 5,307 feet, and No. 1-A, SE cor. NW NE, Section 8-30-2w, which will be plugged from 4,153 feet.

Cowley County

In the Rainbow Bend region, the joint owners, the Marland Oil Co., the Independent Oil & Gas Co. and the Waite Phillips Co., have completed No. 2, NE cor. SW, Section 19-33-3. Sand was 3,198-3,204 feet and the well made 50 bbls. after a shot of 20 quarts; the rig is on the ground for No. 3 Holman, SW cor.

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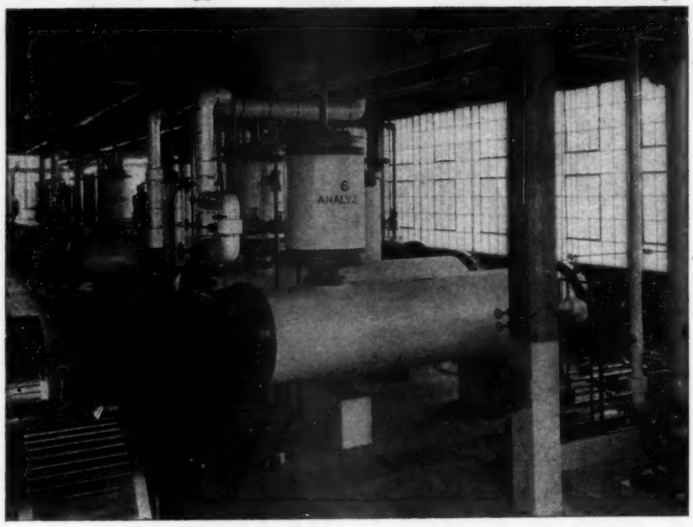

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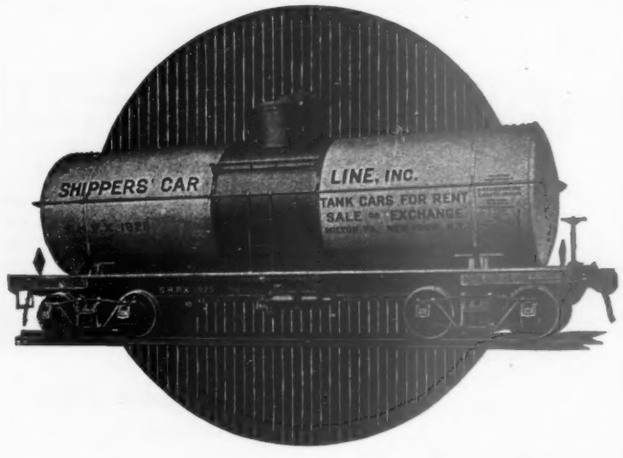

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NW SW, Section 19-33-3. These companies have built rig for No. 8 Thurlow, SE cor. SW SW, Section 16-33-3, and also for No. 18 Nelson, NW cor. NE NW, Section 21-33-3; and for No. 3 Allison, NW cor. NE SE, Section 29-33-3.

Roxana Petroleum Corp. has built the rig for No. 2 Champlin, SW cor. SE, Section 16-34-3, and No. 1, NE cor. SW NW, Section 22-34-3, is dry and abandoned at 3,462 feet.

OKLAHOMA FIELDS

(Continued from Page 44)

Shaffer Oil & Refining Co. has completed No. 7, CWL NW NE, Section 2-18-5. Sand was 3,460-66 feet and the well is making 50 bbls. oil and 70 bbls. water. Marland Oil Co. has the rig on the ground for No. 3 Blue, NW cor. SW SE, Section 7-18-5. Mulberry Oil Co. has abandoned No. 2, NW cor. SE SW, Section 5-17-4, at 4,292 feet.

Comanche County

Becker & Reed and others have a dry hole in No. 1-A, C S half SE SW, Section 3-3-10w, which is abandoned at 1,170 feet. Cook & Graham are drilling at 200 feet in No. 1, CSL SE NE, Section 4-3-10w.

In the Lawton district, Magnolia Petroleum Co.'s No. 1 Rugley, NE cor. SW, Section 30-2-9w, is rigging up a rotary. Western Arch Oil Co. has a dry hole in No. 1-A, CNL NW SW, Section 31-1-8w, which is being plugged from 2,391 feet.

Kingfisher County

Wilkerson Brothers have a rotary rig up for No. 1 Davisson, SW cor. SW, Section 23-15-5w. Hoffman & Jones have built a rotary rig for No. 1 Otis, NW cor. NE, Section 20-15-8w.

Oklahoma County

Hoggerling and others have the rig and tools in for No. 1 Haney, NE cor. NW, Section 17-14-2w.

Grady County

Little Nick Oil Co. has completed a gas well in No. 2, C N half NW NW, Section 35-5-8w. Sand was 2,160-2,500 feet and the well is shut in with 8,000,000 feet of gas. Public Utilities Co. is drilling at 150 feet in No. 1, C SE SE, Section 12-6-7w. Goldeline Oil Co. and others are spudded and shut down in No. 1, SW cor. NW NW, Section 27-3-5w. Garvin Drilling Co.'s No. 1, CSL SE SE SW, Section 35-3-5w, had sand 1,475-84 feet and is estimated at 75 bbls.

Garfield County

Bu-Vi-Bar Petroleum Co. has a rotary rig up for No. 1 Conklin, NW cor. SW, Section 31-23-4w. Marland Oil Co. and Mid-Continent Petroleum Co. are drilling at 360 feet in No. 1, SW cor. SE SW, Section 36-23-4w.

In the Garber Field, the Marland Oil Co. and Mid-Continent Petroleum Co. are building the rig for No. 17 Wishard, SE cor. SW SE, Section 12-22-4w; and also for No. 18 Wishard, SW cor. SE, Section 12-22-4w. Roxana Petroleum Co. is drilling at 850 feet in No. 4-W, SE cor. NE NW, Section 13-22-4w, and No. 5-W Wolfe, NE cor. NW, Section 13-22-4w, is spudded. Sinclair Oil & Gas Co. has a shallow pumper in No. 6, CEL NE NE SE, Section 36-22-4w. Sand was 2,211-31 feet and the well made 50 bbls.; No. 15, SE cor. SW NE, Section 36-22-4w, made 40 bbls. on the swab from sand 2,-150-69 feet.

Kay County

In the Braman Pool, the Comar Oil Co. has spudded No. 7, SW cor. NW, Section 21-29-1w, and in the Braman Townsite Pool the Comar's No. 3 Biddle, NW cor. SW SE, Section 5-28-1w, made 137 bbls. oil and 170 bbls. water from sand 2,355-2,401 feet; and No. 1, NW cor. NE, Section 5-28-1w, made 60 bbls. oil and 15 bbls. water from sand 2,405-06 feet and will probable be made a deep test. Mid-Continent Oil & Gas Co.'s No. 1 Townsite, CEL SE NW NW, Section 8-28-1w, swabbed 11 bbls. from sand 3,470-3,522 feet. C. B. Davis' No. 1, NW cor. SE NW, Section 8-28-1w, was shot with 170 quarts in sand 3,482-3,540 feet and swabbed 25 bbls. from this sand.

In the Blackwell area, The Texas Co. has the rig up for No. 2 Burkhalter, NW cor. NW, Section 9-27-1w. Black Gold Oil Co. has rigged up No. 2 Jones, NW cor. NW, Section 10-27-1w. Blackwell Oil & Gas Co. has the rig built for No. 5 Geiger, CEL NE NE NE, Section 9-27-1w.

WEWOKA POOL DEEP SAND POSSIBILITIES

(Continued from Page 36)

part of the story may be told by the time this article is read. However, delays may hold up the drilling in of these deep wells.

Probable Extent of Area

If the Wilcox structure conforms rather closely to the Smith and Sykes sand structures, only dipping a little more steeply, it is probable that the deep producing area will cover half a section more or less. The Sykes sand, which lies approximately 100 feet below the Smith horizon, dips a little more sharply than the Smith, but structure maps drawn on these two levels are similar.

The Wewoka Pool is in reality almost two separate fields from the standpoint of production. You will notice from the map that there are two separate structures. The east structure centers along the west lines of Sections 28 and 33-8-8 and 4-7-8. The west structure centers in the east half of Section 31-8-8, and is the main fold, being about 80 feet higher than the east structure.

Practically all wells on the east structure are producing from the Smith sand, while nearly all wells on the west structure produce from the Sykes sand, except on the north and east edges of the structure, where there are a few small Smith sand wells. The two northerly wells on the Shaffer lease in the northwest quarter of Section 32, for instance, and the small wells north of them are Smith sand producers. Between the east and west structures the 2,800-foot sand, called by some the "Dixie," yields a little oil. This same horizon also produces at 3,000 feet in Sections 25 and 36-8-7.

West Structure Faulted

You will notice on the map that the west structure is faulted in at least one place and possibly in two different places. The large fault, running north and south nearly through the center of Section 31-8-8 and 6-7-8 has been practically proven inasmuch as the wells along the west line of the center of Section 31-8-8 were all of gusher proportions, ranging from 1,000 to 3,000 bbls., while their west offsets were almost invariably dry and correlations showed the sand to be low in them. All four of the leases in the southeast quarter of Section 31-8-8 have been excellent producers from the Sykes sand.

The small fault shown along the east line of the southeast quarter of Section 31-8-8 is problematical, although it is evident from the sand elevations of wells in that part of the field that something unusual has happened in there. One geologist at least, not Mr. Lyons, has a theory that the deep sand will be found to be faulted in a general north and south direction along the east sides of Sections 6 and 31, accounting for the big yield of the Magnolia well, and that the high part of the deeper structure may be found to the east of the deep sand discovery, where there is a syncline in the Smith sand. That the Dixie Oil Co. geologists do not believe this, however, is shown by the fact that their company is deepening No. 2 Knight "C" and No. 1 Knight "C" in the northeast quarter of Section 6-7-8. The Homaokla Oil Co. is also deepening its No. 2, C SE NE NE, same section, and the Magnolia Petroleum Co. and others are also deepening their No. 2 in the northeast corner of the same section. This lease originally belonged to Champlin and others.

The Amerada Petroleum Corp. and the Independent Oil & Gas Co. evidently believe that the deeper structure lies to the east of the Smith sand structure as they have both started tests in that direction.

Interesting Tests

Up to January 14, only one well in the Wewoka Field had penetrated the same formation from which the Mag-

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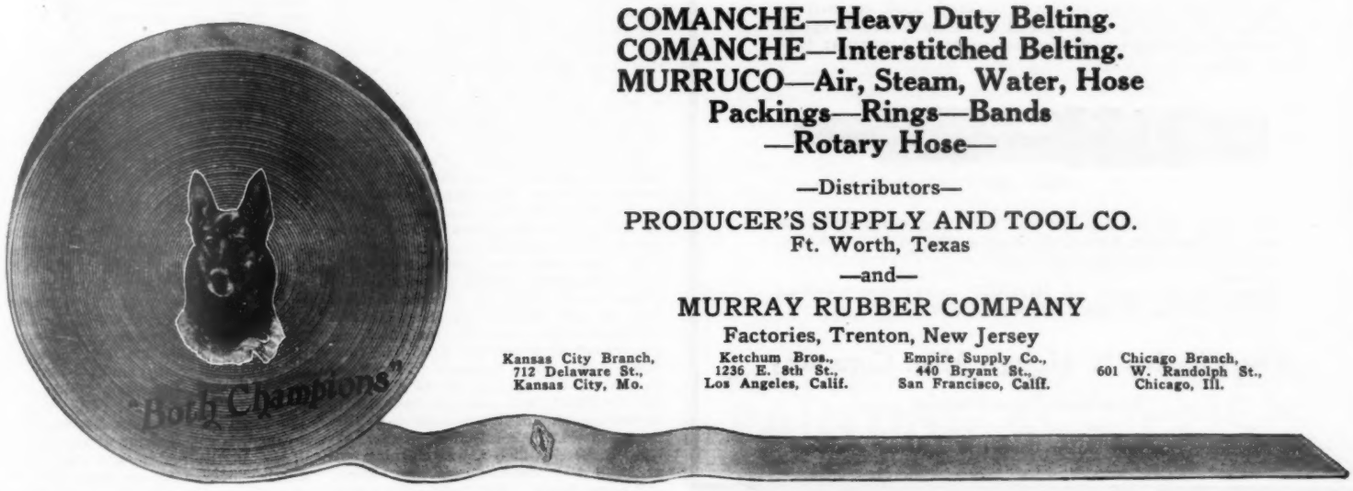

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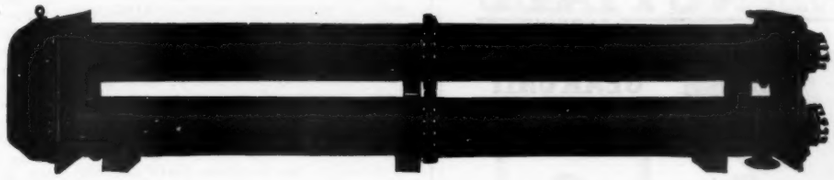

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nolia's deep sand discovery was producing, and that well reached the lower level some time ago, finding nothing but water in it. This was the Dixie Oil Co.'s No. 5 John Long, located on the east structure in the NW SW SE NE, Section 32-8-8. It topped the heavy lime called by some geologists the Hunton lime at 3,873 feet and drilled into water at 4,148 feet. Total depth was 4,161 feet.

It is interesting to note that the Dixie Oil Co. is deepening another well on the east structure to the horizon below the heavy lime. This test is No. 1 Garner in the northeast corner of Section 5-7-8. It produced about 20 bbls. in the Hunton at total depth of 4,007 feet and is now drilling deeper. On the Smith sand, this well and No. 5 John Long, mentioned above as a water well in the so-called Wilcox, have the same identical elevation to a foot, but the Garner test is higher on the Hunton lime.

Geologists who have studied the field closely are not certain as yet concerning the correlation of the Hunton lime and the Wilcox sand. The producing formation of the Magnolia Petroleum Co.'s deep discovery is a true sand and is probably a part of the Simpson formation, of which the Wilcox sand farther north is an equivalent member.

Eleven wells in the Wewoka Field have been drilled to the heavy lime, and several of these have found production in it. Most of them were stopped in the Hunton, in fact, because they could produce from that level. Two of the 11 tests have been mentioned in addition to the Magnolia Wilcox producer. The Dixie Oil Co.'s No. 5 Charles Foster, SW SE SW, Section 28-8-8, was good for about 60 bbls. initially from the Hunton topped at 3,798 feet and drilled to 4,001 feet. The Magnolia Petroleum Co.'s No. 1 I. Walker in the SE NE SW, Section 29-8-8, had some oil from 3,964-78 feet and was drilled to 4,055 feet. The Dixie Oil Co.'s No. 4 Walker in the NW NE SE, Section 29-8-8, was cleaning out at 3,848 feet, according to last report, and going deeper. The Prairie Oil & Gas Co.'s No. 3 in the SE NE SE of Section 31-8-8, was an 80-bbl. well in the Hunton topped at 3,987 feet, and drilling was stopped at 4,041 feet. The Magnolia Petroleum Co.'s No. 4 in the SW NW SW of Section 32-8-8, an east offset of the Prairie's No. 3, and just a quarter of a mile due north of the big Magnolia well, was reported good for 60 bbls. in the Hunton topped at 4,000 feet. It encountered water at 4,065 feet and drilling was stopped at 4,068 feet. Directly south of No. 4, the Magnolia's No. 2 G. W. France was a 72-bbl. Hunton well initially from lime at 3,968-4,007 feet.

Hunton Lime Test

The latest well to reach the Hunton is Ramsey's No. 1 in the NE SE SE of Section 31, two locations north and one location west of the Wilcox sand discovery. Last Thursday it was drilling ahead at 4,145 feet and had not yet reached the big producing horizon. The surface elevation of the Ramsey well is 30 feet higher than the Magnolia's No. 1 Harjo, but even considering this fact, it is already below the structural level of the discovery well, which found the pay at 4,090-97 feet.

The Dixie Oil Co.'s No. 2 Knight "C" in the SW NW NE of Section 6-7-8, was started for the deep sand some time ago, but has been held up for more than a month and a half at 3,955 feet. A rotary is being installed now so it can go on deeper.

The west structure evidently dips sharply to the northwest and to the south as shown by two deep dry holes. The Magnolia Petroleum Co.'s No. 1 Rosanna, in the SE cor. of Section 25-8-7, was drilled to a total depth of 4,441 feet, and on the Smith sand it is 187 feet lower than the Magnolia's No. 1 Harjo. The Cosden Oil & Gas Co.'s old duster in the NE SW SE of Section 7-7-8, nearly 2 miles south and a little east of the Harjo, is at least 200 feet lower and possibly 320 feet, depending on the correlation of the sands over which there is some dispute. The Cosden well had a show of oil in lime at 4,190-4,240 feet and found water in sand at 4,350 to 4,359 feet, total depth.

A peculiarity of Hunton lime production is demonstrated by the fact that the Magnolia's No. 1 Harjo never found any oil between the Sykes sand and the Wilcox and may have missed the Hunton lime altogether, although it is just two locations south of a 72-bbl. Hunton well. Where the Hunton is found in this field it seems to be good for some small production. If the Magnolia well had been even a small commercial producer in the Hunton the deeper and much more prolific pay might not yet be discovered.

More Irish Luck

Irish luck may not have had anything to do with the development of the Wewoka Field, but St. Patrick's Day has figured prominently in its history. The discovery well of the field, R. H. Smith's (now the Dixie Oil Co.'s) No. 1 Betsy Foster, in the NW cor. SW NW of Section 33-8-8, came in on St. Patrick's Day, 1923, good for about 300 bbls. In November of the same year, however, it was deepened a little and increased to 2,800 bbls. The sand in this well at 3,132-43 feet was named the "Smith" in honor of its discoverer.

On St. Patrick's Day, exactly two years after the discovery of the field, the Dixie Oil Co. drilled in its No. 1 "A" Knight in the NE NW NE of Section 6-7-8, which opened up a considerable extension.

The well which really started the Sykes sand development was Sykes & Boggs' No. 1 in the NE SE NE of Section 31-8-8, which came in during the last week of June, 1924, and when finally completed in sand at 3,171-83 feet in July of that year was good for better than 1,000 bbls. The first actual producer in the Sykes sand, however, was the Magnolia Petroleum Co.'s No. 1 Parker in the NE SE NW of Section 32-8-8. This well caused a lot of grief because it was thought at the time that it was in the Smith sand and was considered low. Contour lines had to be altered considerably later on when the true facts were determined.

The first Hunton lime well in the field was the Dixie Oil Co.'s No. 5 John Long, previously mentioned. It was likewise the first well in the producing part of the field drilled to the Wilcox sand, although it never obtained production at that level.

The first Dixie sand well drilled west of the field was the Dixie Oil Co.'s No. 1 Ligon, SE SW SE, Section 25-8-7.

While definite production figures on all leases in the pool are not available, it is probable that the average ultimate recovery per acre in the Wewoka Pool will be far higher than in the Cromwell Field. The best Sykes sand lease in the Wewoka Pool is the Shaffer Oil & Refining Co.'s acreage in the northwest quarter of Section 32-8-8. The five Sykes sand producers and the two small Smith sand wells on this 42-acre tract yielded 550,612 bbls. from October 6, 1924, when the first well came in, to January 13, 1925. That is a recovery of nearly 14,000 bbls. an acre already. Company statisticians figure that the lease will ultimately yield 25,000 bbls. to the acre. It is still doing 800 bbls. daily.

Probably the best Smith sand lease is the Producers & Refiners Corp.'s property in the northwest of Section 33-8-8. The two wells on the Dixie's discovery lease just south of the Producers & Refiners acreage have yielded more than 200,000 bbls. each.

AUTOMOTIVE ENGINEER DISCUSSES MOTOR FUEL

(Continued from Page 32)

in the other half they would show a tendency to knock rather readily, but the immediate effect would be to create a demand everywhere for the suitable fuel, and enough is being produced so that within a comparatively short time the oil industry could rearrange its distribution so as completely to meet the requirements. The oil industry has gone a long way toward providing a suitable spread over about half the United States,

fuel, and it is now up to the automobile industry to give serious thought to supplying the suitable engine. The proposition must be a mutual one. If no engine changes are made there will be nothing to stimulate further advances.

Question of Compression

This question of compression is only one item among the possibilities of improving fuel economy. Vast quantities of gasoline are wasted by inefficient carburetors and inefficient intake manifolds. There are many popular makes of cars of which the mileage can be much improved by substituting a different carburetor and manifold for the original equipment. Such changes often produce a 50 per cent increase in mileage.

If all the motor vehicles in use today were up to date in carburetion and manifolding, the average miles per gallon would be increased at least 20 per cent. There is no fear of any gasoline shortage, not even in the fairly distant future, because we will always be able to make gasoline from other kinds of oil and even possibly from coal. The price of gasoline is not very likely to increase. The gasoline bill is not a large item in the cost of operating a car, but despite these facts it is economically wrong to use engines which are less efficient than they could be made without increasing their first cost.

Reduction in the cost of operating any automobile is bound to stimulate its use. The cost of tires per mile has been cut very much by vast improvements in the tire industry. Mechanical costs of maintenance have been reduced by better materials and better workmanship. Gasoline, though a lesser item, is still a factor and the object of engineers should be to reduce every one of the items which, added together, make the total operating cost.

Suggests Changes in Cooling

Another thing which is very wasteful of fuel is the fact that practically all automobiles operate with engines that are too much cooled. A gasoline engine works best when the cylinders are around the boiling point. The gasoline is more perfectly vaporized, it does not condense on the cylinder walls and cause dilution of the lubricant, and a weaker mixture can be employed when an engine is thoroughly warm. Of course enough cooling has to be provided to take care of extreme summer conditions and that means there is too much for nine-tenths of the year. There are a few cars which have automatic controls so that the cylinder block warms up rapidly and stays hot irrespective of the temperature of the water in the radiator. Their number is increasing but very slowly.

An entirely different system of cooling is making great headway in the experimental departments of many manufacturers and undoubtedly will appear in actual production before long. In this system the water is allowed to boil in the engine. The steam is condensed in the radiator and the hot water fed back to the engine. An engine with such a system can be run on quite weak mixtures because it warms up so rapidly after starting that very little use of the choke is required, and there is no necessity to adjust the carburetor richer when cold weather comes. With steam cooling, as the system is called, an engine will operate at exactly the same temperature in Mexico or Alaska and will therefore need the same carburetor adjustment irrespective of location or of season.

Still another factor which may be anticipated, although it is not yet to be found on many cars, is automatic means whereby the carburetor is made to give a richer mixture when it is cold. Several popular cars have a manual control distinct from the choke which enable the mixture to be made rich at the start and then leaned down as the cylinders get warm, and there are a few devices for doing this automatically. Most motorists have to adjust their carburetors when cold weather comes and run six months consuming probably 10 per cent more gasoline than they really should.

GREATER COMPRESSION DOUBLES EFFICIENCY

(Continued from Page 32)

unsalable, although highly economical to operate.

The ideal carburetor, the ideal transmission, the ideal ignition system and the ideal brakes of this imaginary car are still to be developed to the point where an ordinary man may be expected to operate and service them with some degree of satisfaction. That this may be done is well within the range of probability in the near future. The high compression engine with its increased efficiency and fuel for its use have already become facts and await only the necessary distribution to become potent factors in the automobile situation.

So much faith is placed in this development and its consequences that the Committee of Eleven of the American Petroleum Institute includes in its estimates of future gasoline requirements two parallel columns, one based on present engine efficiencies and another of values just half as great based upon this expected reduction in demand following the introduction of high compressions generally. It is true that the old basis is given temporary preference, but that the new is included at all argues strongly for its importance in any forecast of the motor car's future.

To achieve this result it will be necessary to modify our present fuels considerably. At even slightly higher compressions, gasoline-air mixtures produce detonation or knock, which prevents the proper and complete utilization of the advantage to be gained from the change. Several antiknock compounds have been proposed.

The idea behind them is that comparatively small amounts added to gasoline will convert the detonation or explosion into comparatively slow burning. In other words, the time of the explosion will be so lengthened that the piston of the engine will be able to absorb all the energy produced instead of only part of it, as is the case when detonation occurs. It has also been found that a number of the possible substitutes for gasoline possess antiknock qualities in themselves. Alcohol and coal tar benzine, although the quantities of them now available are not comparable to the demand for motor fuel, may for this reason become especially important in the future. Gasoline produced from heavy oils by cracking processes possesses antiknock properties to some extent and this, too, will be increasingly important because it enables the refiner to produce a larger proportion of gasoline from his crude oil than can be done by ordinary distillation methods.

Increasing Gasoline Supply

The progress of cracking processes has been very rapid within the last few years and has made it possible for refiners to produce several times as much gasoline from a given amount of crude oil as would be otherwise possible. In 1914 100 gallons of crude oil yielded an average of only 13 gallons of gasoline in American refineries, but in 1924 the average yield of the same amount of crude oil had been increased by cracking to nearly 30 gallons. This is a striking increase and especially when one considers that barely one-fourth of our gasoline supply comes from cracking processes. It is well within the ability of refiners to get 55 gallons of gasoline from 100 of crude oil, but it may not be economically possible to carry it that far.

Substitutes for gasoline are not yet of prime importance in the United States. The matter of cost will ultimately make them as necessary here as they are abroad, but so long as gasoline can be delivered to the consumer at prices as low as 20 or even 30 cents a gallon there is too little reward in the development of substitutes. Studies are being made by governmental agencies, by some of the larger automobile companies and by others to whom it is more or less incidental to something else. Indeed, one must consider most of the work along this line, except the study of antiknock compounds, in this country as quite casual and related to some other more pressing question.

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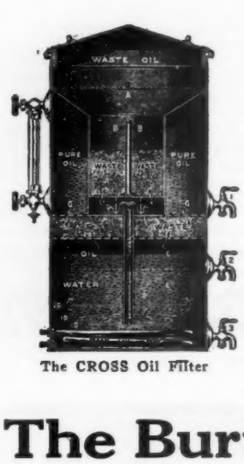

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PROMISE OF GOOD YEAR FOR OIL IN AUTOMOBILE CHAMBER'S OUTLOOK

Facts and figures of the automobile industry for 1925 when viewed from the standpoint of gasoline consumption not only reveal the source of the petroleum industry's good year just past, but are an encouraging index for the ensuing year.

There are now over 20,000,000 motor vehicles registered in the United States. At the end of last year the number was 17,591,981. This is an answer to the talk of the saturation point which has been prevalent ever since the automobile figures got into the millions.

In 1925 car and truck production totaled 4,325,000, a high record for the industry, comparing with 3,617,602 cars in 1924 and the previously record figure of 4,086,997 in 1923.

In 1926 the automobile industry is aiming for a 5,000,000-car year. In pointing to the prospects just ahead the view is held that this year may see the highest production the industry has ever known, and possibly will ever know. The industry is prepared to turn out 5,500,000 cars. The capacity is close to 6,000,000 cars.

If conditions of demand warrant such a production as is now scheduled there will be another two to three and a half million cars added to the number now on the roads during the coming year. In terms of gasoline consumption this means an increase of from a billion to a billion and a half gallons annually.

Until a year or so ago American automobile manufacturers generally viewed the foreign market with indifference. They had plenty to do to supply the needs in this country. Furthermore, following the World War, financial conditions in foreign countries were considered unfavorable for the development of automobile sales. Probably the slump in automobile sales in this country early in 1924 from the anticipated demand had much to do with manufacturers turning their attention to foreign countries, the export field offering a means of taking care of the surplus of American plants.

Sales Abroad as Insurance

The logic of developing outside markets as insurance against plant curtailment and shutdown is appealing more and more to the automotive industry as the automobile registration figures attain such staggering totals. Instead of awaiting the rehabilitation of foreign countries, American manufacturers have gone aggressively into world markets applying intensive and carefully worked out sales methods.

In 1925 there were 550,000 motor vehicles exported, compared with 386,580 cars in 1924. Alfred Reeves, general manager of the National Automobile Chamber of Commerce, declares that within a few years a million cars will be sold abroad annually.

The possibilities of the growth of the use of automobiles in foreign countries was brought out during the Second World Motor Transport Congress held in New York, January 11 to 13. Manufacturers from all over the world were in attendance and American manufacturing methods were fully discussed. According to Mr. Reeves, European factories must more and more adopt American methods. He pointed out the educational value to the foreign visitors in seeing the prosperity of the motor business in the United States and that it is based on competition and volume of sales. The point is brought home to them, he says, that if they had a much greater use of their automobiles at home. the factors that are operating as sales resistance to them would be broken down and that a much larger business can be done. providing place for both the domestic and American manufacturer.

That a new era in world automobile use is just dawning is plain and what this will mean as regards increased demand for petroleum products is obvious. It will mean more intensive development of foreign oil fields, and a real world struggle for oil.

Mr. Reeves' View

Regarding foreign automobile possibilities, Mr. Reeves says in the New York Evening Post's Annual Financial and Business Survey:

"The sale of American motor vehicles abroad in 1925 was equivalent to the entire production of the industry in 1914. This fact is, I believe, one we should bear in mind in regarding the opportunities in the foreign field.

"There have always been some persons who become pessimistic concerning a business because of its size. They hold the view that large production, large registra-

HIGH POINTS OF THE AUTOMOBILE INDUSTRY FOR 1925

By Alfred Reeves, General Manager, National Automobile Chamber of Commerce

Production	
Cars and trucks	4,325,000
Cars	3,833,000
Trucks	492,000
Percentage increase over 1924	19%
Production of closed cars	2,157,000
Per cent closed cars	56%
Total wholesale value of cars	$2,500,000,000
Total wholesale value of trucks	$ 500,000,000
Total wholesale value of cars and trucks	$3,000,000,000
Tire production	55,750,000
Wholesale value of motor vehicle tire business	$ 886,700,000
Total wholesale value of parts and accessories, exclusive of tires	$1,000,000,000
Average retail price of car, 1925	$ 866
Average retail price of truck, 1925	$ 1,350
Number of persons employed in motor vehicle and allied lines	3,200,000
Special Federal excise taxes paid U. S. Gov. by auto industry, 1925	$ 126,552,000
Registration	
Motor vehicles registered in U. S. (approx.)	20,000,000
Motor cars	17,500,000
Motor trucks	2,500,000
World registration of motor vehicles	24,600,000
Per cent of world registration owned by U. S.	81%
Motor vehicle registration on farms	4,600,000
Motor cars	4,160,000
Motor trucks	440,000
Miles of improved highways	495,000
Total miles of highways in U. S.	3,002,916
Gasoline consumed by motor vehicles, 1925 (gals.)	7,494,000,000
Motor Bus and Motor Trucks	
Buses in use	70,000
Motor buses produced	15,000
Consolidated schools using motor transportation	11,838
Street railways using motor buses	251
Buses used by street railways	5,000
Buses used by steam railroads	367
Steam railroads using motor buses	20
Railroads using gasoline rail motor coaches on short lines	190
Railroads using motor trucks as part of shipping service	51
Exports	
Number of motor vehicles exported	550,000
Value of motor vehicles and parts exported (including engines, tires)	$ 392,600,000
Per cent increase in motor vehicles exports over 1924	44%
Per cent of motor vehicles exported	12.2%
Number of motor vehicles imported	630
Motor Vehicle Retail Business in U. S.	
Total car and truck dealers	47,014
Public garages	55,000
Service stations and repair shops	75,105
Supply Stores	61,617

tion, threatens a cessation in the business, fearing lest the market be glutted.

"Such a fear, however, is of a minor nature. Manufacturers should and do guide their production activities by the market demand, but when this demand is large, when the use of the product is very widespread, the signs for the future of that business are highly favorable because the volume of business is an index of public approval.

500,000 Cars Exported in Year

"This point is worth noting, because one may anticipate that there will be some skepticism concerning the possibilities of the foreign trade in automobiles; and because the fact that more than a half million automobiles were bought this year in foreign countries is in itself a guarantee of the future.

"The question comes to mind when one talks of the foreign market whether a citizen abroad can afford to include the automobile in his budget as readily as the American buyer. In short, can we expect to sell as many automobiles per capita to Brazil as are marketed in this country?

"We cannot expect this. Progress will go forward more slowly. But the fact remains that the United States now uses 83 per cent of the cars and trucks in the world, while having only 17 per cent of the population.

"Even when one subtracts China, Russia and India, where marketing conditions are difficult except in the big cities, there remain millions of people in countries all over the globe who are potential buyers of automobiles.

"Even more than in the United States we shall find in other countries the automobile creating the wealth whereby it may be purchased.

"There is a temptation to speak of 'backward countries.' We even tend to feel that the average man in the other civilized countries is not of the same caliber economically as the American citizen. This lower per capita wealth, however, is not necessarily an indication of inferior racial stock, but rather of a lack of facilities to develop national resources.

"With the coming of the highways, the motor bus, the motor truck, and the passenger automobile, the wealth of those countries which now lack transport facilities will be multiplied many fold.

"This highway development is now in active progress, particularly in South America. Uruguay, which has only 1,600,000 people, is a leader among the South American countries in highway building and has a road program for many years ahead. It is possible to drive for a week in this country and go for the entire distance on improved highways.

"It is significant that automobile representation in that country is one for every 96 persons, as compared with one for every 734 in Brazil.

Brazil Showing Growth

"Brazil, however, is a growing empire, equal in size to the United States (Alaska excepted) and has an unlimited potential wealth of raw materials.

"The Pan-American Road Congress has recently been concluded in Buenos Aires. An American delegation attended, headed by H. H. Rice, a director of the National Automobile Chamber of Commerce. The leading technical representative for the Government was Thomas H. McDonald, chief of the United States Bureau of Public Roads. Congressman Hull of Illinois, several highway experts, and Dean A. N. Johnson of the University of Maryland were included among the visitors.

"This event and the high caliber of the United States personnel attending is indicative of the importance and possibility of the economic growth in our sister republics to the south.

"Highway building, in fact, where there are resources and population, is the beginning of a favorable economic circle. The highway permits greater use of the motor vehicle.

"The motor vehicle provides transportation for persons and goods, making it possible to develop the resources. The development of the resources enables people to purchase more motor transports and the increased fees from motor transport provides the funds for additional highways.

"That has been the story of our country, and the need for transport is bringing about similar changes the world over.

"While China, India and Russia have been indicated as difficult markets where progress is not likely to be in proportion to population, yet even here we may look for some improvement.

"The registration in these countries at present is: China, 10,101; Russia, 15,000, and India, 55,900.

"In the Asiatic countries referred to there are good business opportunities in the large cities, both among the native residents and the foreign colonies.

"The Russian situation is exceptional, but it is reasonable to expect that time will have a favorable effect and that that nation will again become one of the world markets.

Has Become Staple Product

"It is worth while to pause for a moment, however, to consider the domestic market. The automobile manufacturers are not neglectful with regard to sales in the United States.

"It is, of course, a highly competitive situation, and with the constant effort to make the best product at the lowest possible price, each organization is on its toes in the effort to be a leader in the field. But in the last analysis, the domestic market is well understood and there is little doubt that the grand total demand for automobiles in the United States next year will be at least the equal of 1925.

"The domestic market doesn't constitute the chief problem. Manufacturers know that millions of cars will be sold here, just as there will be millions of pairs of shoes merchandised, millions of overcoats, pounds of sugar, chairs, and other items in general use. In short, the automobile in the United States has become a staple product.

Three Large Obstacles Abroad

"Now there are other difficulties and prejudices to be met abroad aside from the obstacle of insufficient highways.

"Among these barriers may be named: Prohibitive tariffs, punitive taxation and the chauffeur system.

"I believe that the tariff obstacle will become less important within the next few years. At present there are tariffs in certain countries, particularly in France, advocated by the local manufacturers, who fear American competition.

"But as the use of motor transportation increases there will be a greater demand on the part of the public in these countries to get motor vehicles at lower prices, with the result that the governments will have demands made by their own people to permit the incoming of the United States product without these charges.

"There are two reasons why we expect this more lenient attitude. The first is that the American motor prices are not based on a low standard of living, but on technical efficiency. The contention cannot be made that the wages of the employes must be reduced to meet the competition. The stress is rather laid upon factory efficiency."

PENNSYLVANIA MARKET HAD VERY DULL WEEK

OIL CITY, Pa., Jan. 16.—The past week was a very dull one in the Pennsylvania refined markets.

Gasoline, kerosene and cylinder stocks are not moving the way they should at the present prices, but they are holding their own, although they were not very strong during the week. Naphtha demand was fairly good. Fuel oil was in good demand with prices holding firm. Wax was a little off in demand. Neutrals and bright stocks were strong and in good demand.

ORGANIZES NEW CONCERN

Frank C. Enz, formerly president of the Evansville Oil & Grease Co., of Evansville, Ind., has organized the Checker Oil & Grease Co. with headquarters in the same city. The Evansville Oil & Grease Co. last year was sold to the Marland Refining Co. Mr. Enz continuing as manager until January 1.

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HAVE ENGLAND AND SCOTLAND HAD A REAL TEST FOR OIL DEPOSITS?

*By E. H. Cunningham Craig, B.A., F.R.S.E., F.G.S., Etc.

The quest for free petroleum in Britain aroused considerable interest a few years ago, when it was being pursued under official auspices and at the public expense, but since the work was abandoned interest has dropped, and it seems to be generally believed that the attempt ended in complete failure.

In justice to the geologists who planned the campaign and the drillers who carried it out, it is necessary to make it clear that results of great interest and value were obtained, and that in at least one instance the test was not by any means conclusive. In fact, the question as to whether it is worth while to drill for oil in Britain is not yet settled.

It will be remembered that some 11 wells were drilled. In most of them the only hope of obtaining oil in quantity lay in finding one or more bands of the Millstone grit impregnated. The evidence obtained in nearly all these tests consisted of signs of a former impregnation, now unfortunately dissipated. But most of the wells were continued to horizons far below the Millstone grit, and signs of residual or filtered oil were encountered, in one case (Hardstoft) to such an extent that it was believed that a workable oil field had been proved. The Hardstoft well yielded about one ton per day of a filtered oil from a thin and closely grained band of rock. In the circumstances this showing was by no means hopeful, but production was kept up very steadily, and the well may even now be producing. But a second well only struck gas and water, and a third well has not yet been completed.

Other wells gave only small shows of heavy oil, or slight quantities of gas, and it is probably generally recognized by now that when the Millstone grit was proved unproductive in the various domes tested, the hope of finding good productive fields would have to be abandoned; sporadic shows of oil from the Carboniferous limestone group beneath only served, as the writer stated would be the case at the time, to encourage false hopes. So far then, England has failed to provide the desired oil field, and gives little or no promise of doing so.

Conditions in Scotland

The case in Scotland, however, is different. Only two wells were drilled in that country, and one was certainly not carried to a sufficient depth to be regarded as an adequate test. Yet of all the wells drilled, that one (at Darcy) had the brightest prospects of being successful. It is located on a small and well-formed dome upon a well-defined anticline of considerable size, having a concentration area of at least 24 square miles. This is without doubt the largest and best structure that was considered from the point of view of petroleum prospects in Britain; it contains two domes with a gentle saddle within them, the crest is broad and flat, while one flank is steep and the other fairly gentle. The Calciferous sandstone group, in which occur the horizons likely to prove petroliferous, lies only 100 feet or so beneath the surface. This group of strata is very well known by reason of the oil shale mines, boreholes and the number of detailed vertical sections published by the Geological Survey, so it was a matter of no great difficulty to determine what stratigraphical horizons might be expected to prove petroliferous. But the theory upon which the possibility of oil being found was subjected to much criticism in Scotland, and for that reason it is perhaps as well to recapitulate the main arguments for and against the undertaking.

Liquid or semi-liquid petroleum is known to occur in many places in the oil shale fields, and even on the eastern side of the Pentland Hills, but in numerous instances it has been proved that the dolerite intrusions in the strata have distilled oil from oil shale beds, and the oil is found in cavities or coating joint faces in the igneous rocks or in seepages from porous strata in the immediate neighborhood of these. It has been suggested that all occurrences of liquid or semi-liquid oil in these districts have their origin in such natural distillation. On the other hand, it was claimed that where liquid petroleum with a green fluorescence is found in a close grained sand far from any igneous intrusion and on the crest of an anticlinal flexure, it is the remains of a former impregnation of free petroleum, even though nothing may be left but soft ozokerite and bituminous stains, such as are sometimes found in a more porous sand.

Chemical Evidence

Chemical analysis, of course, is sufficient to settle this point very quickly. Naturally distilled oils are cracked oils, and have all the characteristics of shale oil made by destructive distillation, whereas free petroleum, even if highly inspissated, betrays no sign of cracking. Unfortunately, not all geologists have sufficient chemical knowledge to make the distinction, and consequently confusion has sometimes arisen between the two kinds of oil. But when we apply chemical tests there is not the least difficulty, and consequently the fact that free petroleum does occur here and there has been demonstrated conclusively.

To return to the question of probable petroliferous horizons, we find four most distinctly marked out, namely, the Binnie, Dunnet, Hailes and Granton sandstones. There remains, however, the question as to whether these horizons are represented as sands beneath the surface where the well at Darcy was located. The oil-shale is subject to great local lateral variations, in addition to which a general thinning of the strata, roughly from northwest to southeast, is indicated. Thus in the 6 miles of syncline between the Pentland Hills and the Cousland-Darcy anticline the strata may have changed considerably.

From a study of all known boreholes and vertical sections, the writer estimated roughly that the series would probably have thinned out 300 feet in the upper half of the series, and possibly slightly less in the lower half. It was possible, therefore, to predict the occurrence of the first chance of oil at 1,500 feet and the second at 1,800 feet, while further and even better chances were to be expected at 2,600 and 2,900 feet, respectively. In the boring a slight sign of oil was noticed at quite a shallow depth, but at 1,490 feet came the first definite show of heavy inspissated petroleum. This show was but a small one, whereas at about 1,800 feet the drill entered a hard and rather calcareous sand which showed small blebs of soft paraffin. On the drilling being continued to 1,810 feet, a heavy free petroleum was encountered. The oil is a dark red-brown in color, and contains a large quantity of solid paraffin; it is solid on a cold day, but melts with the warmth of the hand to a good mobile oil. The production is understood to have never been greater than 7 bbls. per day.

Needless to say, there are no igneous intrusions in the neighborhood.

A Well to 3,000 Feet

Now these facts are very significant. If it were possible to predict the probable oil horizons with such certainty, the inference that the lower untested horizons may also be petroliferous, and on a much greater scale, is insistent. The Hailes and Granton sandstones where best developed are each some 300 feet thick and are good porous freestone, admirably adapted to act as petroleum reservoirs, which they certainly were in some localities in a former age. Under the Darcy-Cousland area they may be much thinner and less porous, but the general opinion among those geologists who are most familiar with Midlothian is that they will be present. It is evident, therefore, that the test has not been completed, and there are many geologists who eagerly look forward to the

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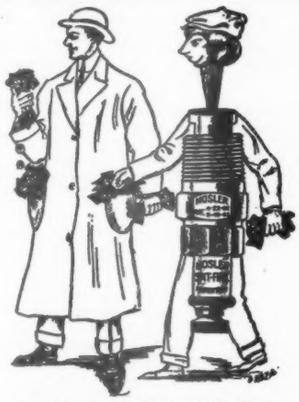

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drilling of a 3,000-foot well to settle the question once for all. Whether such a well will ever be drilled is another matter. It is at the best very speculative, and perhaps hardly a commercial proposition, but the drilling could certainly be done more rapidly and more efficiently than in the case of the Darcy well. Down to a depth of 1,800 feet the log need not be taken nor casing securely set; after that depth care would have to be exercised and the drillings examined for fossil or other evidence of geological horizons. But before any commercial company could undertake such a test, there would require to be a combination of all proprietors owning the land coming into the possible productive area, so that no rival enterprise need be feared. It should not be difficult to bring about such a combination, where all stand to gain by a favorable result and none to lose.

An outside limit to the possible productive area can easily be demarcated, and an inner probably productive limit will not be difficult to estimate on account of the accurate knowledge of the ground that has been obtained. A test well at Cousland may have some slight advantage over one at Darcy, but both domes should be tested fully. To give some idea of what a successful well will mean, it may be stated that a productive area of between one and two square miles may be looked for, that is to say sufficient for 300 to 600 wells. A settled average production of 10 bbls. per day per well would be sufficient to make the enterprise profitable. The oil may be heavy, but should improve with depth. It will be of good quality, and rich in paraffin wax.

It is the writer's considered opinion, as it has been since he first suggested such a test, that, given a firm agreement with all interested proprietors, the drilling of two wells, though admittedly speculative, is worth undertaking.

MONTANA GAS CO. TO TEST UTILITY LAW

HELENA, Mont., Jan. 16.—The Gallatin Natural Gas Co., which brings natural gas from wells in Wyoming near the Montana line and markets it in Billings, through the Billings Gas Co., likewise furnishing gas for Laurel and Fromberg, has brought suit in the District Court of Yellowstone County for relief from the order of the Montana Public Service Commission of August 25, 1925, in which it was determined to be a public utility.

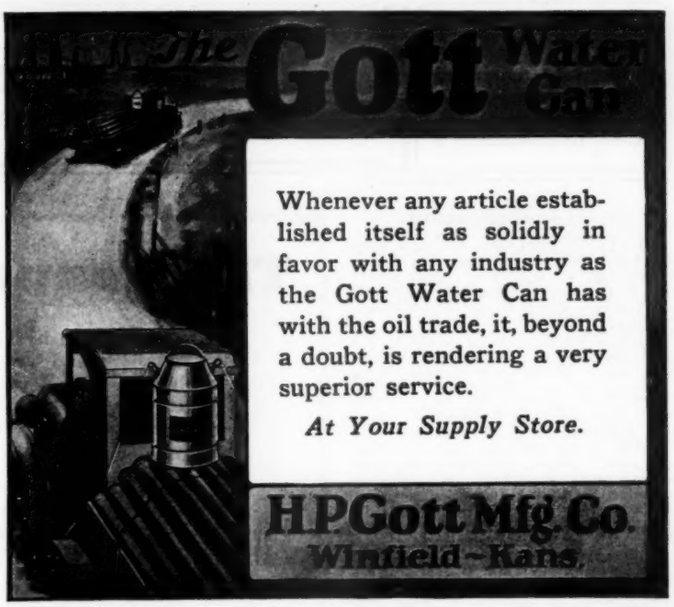
The complaint asks for an order of the District Court indicating that the company is not a public utility and not subject to jurisdiction of the Public Service Commission and for a temporary injunction suspending the order of the commission pending disposition of the suit.

ONTARIO NATURAL GAS RATES

CHATHAM, Ont., Jan. 16.—An inquiry in connection with the application of the Dominion Natural Gas Co. for fixed rates was held at Brantford before G. F. Henderson, natural gas referee. The application of the company for new rates affected patrons in the counties of Haldimand, Norfolk, Brant and Elgin. The Dominion Natural Gas Co. asked increases on the ground that these were necessary if the company was to continue, and evidence was submitted to support this contention. The muncipalities affected opposed any increase. The referee, at the conclusion of a two-day hearing, issued an order authorizing a uniform flat rate of 60 cents per 1,000 feet for all municipalities concerned, this involving a reduced rate in some municipalities but increases in most.

JOHN D. POINTS WAY TO WEALTH

To his golf caddy at Ormond Beach, Fla., John D. Rockefeller has confided his formula for the making of riches. Harmon Small is the lad who carries bags and hunts lost balls for the aged golfer, and this is what Rockefeller has told him is the way to get rich: Don't buy anything you don't need; save your money; be punctual, and form good habits.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TO CLOSE quick deal will take $20,000 for 50,000-acre oil and gas lease; drilling rig, all equipment; good structure in Grayson County, Kentucky. C. L. Williams, 969-B Union Trust Bldg., Pittsburgh, Pa.

TEXAS PANHANDLE RANCH for sale in fee, near oil and gas wells, cheaper than leases. Brokers don't answer. John P. Marrs, Wichita Falls, Tex.

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LEASES FOR SALE or drilling. Webb, Zapata, Jim Hogg Counties. For further information write Olof Johnson, 608 Tower Avenue, Superior, Wis.

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OIL AND GAS LEASES

Running 10 years in Townships 22, 23, 24, Ranges 6, 7, 8, Garfield County, for sale at $1 to $2.50 per acre. Also other leases and royalties in Garber Field. A. B. Hugo, Enid, Okla.

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1,000 ACRES for an offset well. Free loan of casing. Virgin territory, 3 miles from production. About 1,100-foot drilling costing $2 per foot. Located in Warren County, Kentucky, northwest of Davenport Pool. Full information furnished responsible operators or companies. R. E. Cope, Box 489, Bowling Green, Ky.

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WANTED POSITION with new organized or expanding oil company by woman, experienced in land and lease record work. Competent to handle such department. Satisfactory references. Box B-104, The Oil and Gas Journal, Tulsa, Okla.

OIL ACCOUNTANT and office manager with eight years' experience in the oil business, both field and office, wants connection with reliable progressive company where hard work and ability will mean advancement in the future. A high-class young man who possesses the aggressiveness and personality to make a success of whatever he undertakes. Now employed, but prospects limited. Box B-105, The Oil and Gas Journal, Tulsa, Okla.

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WANTED—Small production oil and gas with other locations to drill, price must be reasonable. State full particulars, acreage, wells, depth, gravity, thickness of sands, dry holes, price, terms, reason for selling. Address R. H. Kistler, 303 Castle Bldg., Tulsa, Okla.

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WANTED — Production to purchase, entire equipment. State production and equipment to buy in Texas or Oklahoma. Give full details first letter. Address
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SILVER LEAD MINE
I have large silver lead mine located in Colorado. Pay ore ready to mine; have to have financial help to equip the mine for operation. Address P. O. Box 882, Wichita, Kans.

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If in position to invest $10,000 and stand prosperity or adversity in an open and above board opportunity to make real quick money, write me for particulars without obligating yourself, furnishing evidence that you are financially able. C. H. Roe, Route 1, May, Tex.

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OIL IN FORIDA?
If you wish to know the truth about Florida write for particulars. I will buy land near Lake Okeechobee, South Central Florida.
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Will exchange 3,000 acres oil leases on favorable structure, Henderson County, Kentucky, for 2,000-foot test well. J. F. Hyatt, 5900 Michigan Ave., Chicago, Ill.

FINANCE your project with bonded stock. Quickest and most satisfactory known method of raising capital. Booklet free. Bankers Interstate Security Co., Electric Bldg., Denver, Colo.

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 35 E. Tenth, Oklahoma City, Okla.

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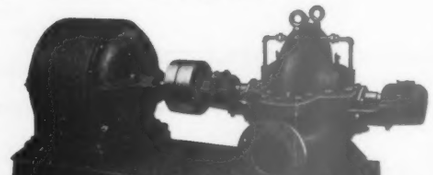

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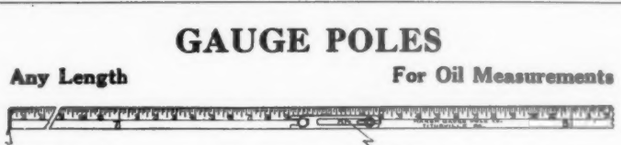

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For sale by oil country supply houses or furnished promptly by the factory at Titusville, Pa.

Correspondence Solicited

MARSH GAUGE POLE COMPANY
TITUSVILLE, PA

ROCKY MOUNTAIN AREA

(Continued from Page 54)

Power Co., a subsidiary of the Cities Service Co.

Important developments are reported from the LaBarge Field in Southwest Wyoming. The Texas Co. is said to have reached an agreement with the Beneficial Oil Co. by which The Texas Co. takes over the holdings in the LaBarge Field and will operate the properties in the future.

The Beneficial Oil Co. has leases over 1,040 acres in LaBarge Field which also includes the holdings of the Wyotah Oil Co. These holdings lie in Townships 26 and 27, Range 113 and the Beneficial company has two wells with an estimated production of 800 bbls. This property has been sending its oil to the railroad by truck and the plan is rather costly compared with pipe line transportation. The Texas Co. is known to be facing a shortage of crude for its refinery at Casper and is searching for more oil. With a pipe line to the railroad, a distance of about 30 or 35 miles by air line, The Texas Co. could send the LaBarge production by rail to its Casper plant. The LaBarge crude is an excellent grade of oil, good gravity and the production comes from between 1,500 to 1,700 feet deep, so the development would not be as costly as the deeper fields of this region.

Mahoney Dome

Mahoney Dome, in the Lost Soldier Field, Carbon County, is attracting attention due to the finding of a heavy gas pressure in the Sundance sand. This sand lies below the Dakota formation in the Jurrassic and is considered an enigma by the oil men. At Hamilton Dome, in the Big Horn Basin, it produces a good grade of black oil that has a greater content of gasoline than some of the light grades of crude produced from sands above. In other parts of this region the Sundance sand is found to carry a heavy black crude that is not thought worth drilling for. The Mahoney Dome seems to be wholly gas in the Sundance, while at Salt Creek it is known to hold a good grade of crude that is classed as light oil.

Mahoney Dome has gas in the Dakota and is producing from that horizon. The Hughes Royalty Co. has a well in the Dakota on Section 26-26-88 that is a gas well in the Dakota and is preparing to deepen to the Sundance, which lies 450 feet below the Dakota. The Ohio Oil Co. has a well drilling about a quarter of a mile from the Hughes well, in the Sundance, that is expected in next week.

Fort Collins Completions

The Union Oil Co. of California completed a well in the Fort Collins Field, on Section 30-8-68, finding the Muddy sand at 4,677 feet and a commercial well. The well is about a half mile from the Blunck well and it appears to be very close to the edge of the field pool for the new well has not made a flow or shown much signs of being a large producer. In fact the oil men who saw it come in estimate it good for 250 to 300 bbls.

The Union of California is drilling to the Dakota formation in Section 36-10-69, with the hole at 5,225 feet, and another Dakota test in Section 32-10-68 is at 4,950 feet. When the Fort Collins Field was first discovered it was thought that the oil was coming from the Lakota of Dakota sands, but later checks showed the oil was in the Muddy sand and no test has yet been drilled to the Dakota formation with its two sands. The Dakota sands will lie over a mile in depth in the Fort Collins Field and this factor will make the development of a field, if one is found, a very costly and long time operation. As it is, the wells there cost upwards of $100,000 and take from six months to a year to drill.

The Homestake Exploration Co., operating in the Sunburst Field, will lay a pipe line to carry its crude to the railroad at Sunburst town. This line will be 10 miles long and the Homestake considers that the line will pay for itself in a couple of years through the saving of carrying charges and the ability to produce its wells to capacity instead of pro-

Announcement

We have purchased from the Earle Gear & Machine Company, of Philadelphia, Penna. their entire line of Centrifugal Pumps

This addition to our line of Reciprocating Power Pumps enables us to thoroughly service your present and future pump inquiries.

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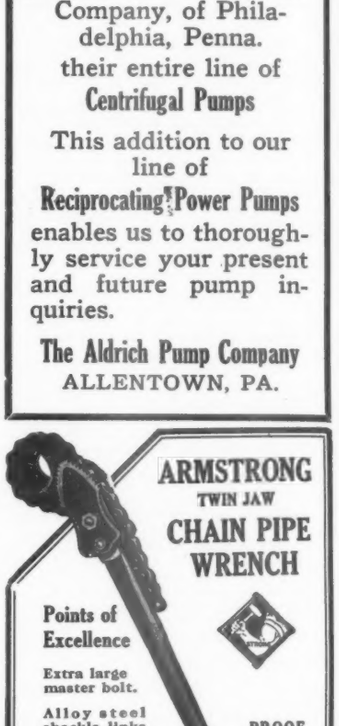

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DIVIDEND NOTICE
Imperial Royalties Company

Will pay monthly dividend of 1⅛% to Preferred Shareholders on January 30. This is Dividend No. 64, and makes a total of 116½% paid to shareholders.

E. S. HORN,
H. O. BLAND,
J. E. HORN, Trustees.
333 Mayo Building, Tulsa, Okla.

No Wildcatting

During the past month, big deals amounting to millions of dollars have been made in leases, royalties and production by regular readers of The Oil and Gas Journal.

If you wish to buy or sell anything now is the time to do it. Use the Classified Wants Section of The Oil and Gas Journal.

It will help you!

rating, as is being done at present in that field.

Eastern Utah Well

The Cane Creek well in eastern Utah, where the Midwest Refining Co. and the Utah Southern Oil Co. brought in a flowing wildcat, is still waiting on the completion of the rig and tools to clean the hole and get the well in shape to make production. In the meantime the district is being searched by the scouts for available leases of permits, and it is expected, should the Cane Creek well prove good, three other structures close by will also come in as producers, and land on these three other structures is being held for developments.

Leslie Parker has joined with N. M. Wheeler in a suit against the Sinclair interests, claiming a portion of the Teapot Dome by virtue of an old claim filed under the placer claim law that was superceded by the leasing law. Mr. Parker was interested in the Big Muddy Field and also in some Salt Creek leases. Formerly a resident of Casper, he is now living in Denver. It was considered when the Teapot lease was signed by the Government, that all these old claims had been examined and their status passed upon so that no trouble might arise from same.

Salt Creek Completions

The Midwest Refining Co. completed 15 new producers in the Salt Creek Field through subsidiary companies. The Midwest Oil Co. has a pumper in Section 19-40-78, in the second Wall Creek sand, at 2,126 feet. In Section 27-40-79 the same company completed two producers, one a second Wall Creek well at 2,045 feet and the other a first sand well at 1,231 feet. The second Wall Creek well will make 153 bbls., while the first is estimated at 15 bbls. The Midwest Oil Co. also completed a producer in Section 26-40-79 good for 10 bbls. at 1,497 feet, one in Section 25-40-79 that started off at 600 bbls. from a depth of 1,105 feet, one in Section 2-39-79 that will make a pumper at 1,212 feet.

The Wyoming Associated Oil Co. completed a 75-bbl. producer in Section 24-40-79 at 1,175 feet and in Section 26-40-79 a producer estimated at 127 bbls. in the second Wall Creek sand. The same firm completed a producer in Section 25-40-79 placed at 15 bbls. at 1,100 feet and one in Section 27-40-79 good for 20 bbls. at 1,373 feet. The same firm found oil at 1,172 feet in Section 35-40-79 that will make 10 bbls., and one in Section 30-40-78, in the second Wall Creek sand, good for 20 bbls., at 2,065 feet.

The Wyoming Oil Fields Oil Co., in Section 25-40-79, found a natural producer at 1,210 feet good for 25 bbls., and the same company has a producer in Section 23-40-79 at 1,246 feet that will make a pumper.

Field Runs for the Week

Salt Creek	61,460
Teapot	1,850
Big Muddy	3,260
Grass Creek	2,720
Elk Basin	660
Greybull	20
Rock River	2,940
Lance Creek	2,350
Poison Spider	390
Osage	270
Hamilton Dome	1,100
Lander	260
Byron	30
Pilot Butte	30
Lost Soldier	4,040
Ferris	40
Cat Creek	3,150
Sunburst	8,760
Lake Basin	110
Iles Dome	146
Moffat	3,163
Florence	400
Fort Collins	1,899
Boulder	25
Rangeley	100
Tow Creek	110
Hog Back	510
Artesia	3,498
Miscellaneous	120
Total	103,451

NORTH CENTRAL TEXAS

(Continued from Page 40)

spudding; Native Oil Co.'s No. 1 Johnson, drilling at 2,560 feet; New Domain Oil Co.'s No. 1 Barton, 3,132 feet; Prairie Oil & Gas Co.'s No. 1 Johnson, 2,055 feet; No. 2 Weatherly, fishing at 900 feet; Phillips Petroleum Co.'s No. 1 Johnson, drilling at 435 feet; Phillips and others' No. 1 Weatherly, 2,190 feet; Pulaskie Oil Co.'s No. 1 Smith, 700 feet; No. 2 Smith, 350 feet; S. Hutchinson Oil Co.'s No. 2 Whittenburg, 2,250 feet; Travelers Oil Co.'s No. 1 Kingslord, 2,845 feet; Twin Six Oil Co.'s No. 2 Kingslord, 2,435 feet; No. 4 Kingslord, 500 feet; Westex Oil Co.'s No. 1 Whittenburg, 2,120 feet; No. 2 Whittenburg, 200 feet; Whittington and others' No. 1 Kingslord, 2,535 feet.

Young County

Bashara and others' No. 3 Marshall, spudding; Bridwell and others' No. 3 Boren, drilling at 1,054 feet; No. 4 Boren, 350 feet; Carey and others' No. 1 Graham, 590 feet; Consolidated Oil Co.'s No. 1 Hall, 956 feet; Gragg and others' No. 1 Graham, 340 feet; Green and others' No. 1-B Wilson, 1,140 feet; Hubbard Drilling Co.'s No. 1 Harrison, 2,835 feet; Humble Oil & Refining Co.'s No. 1 Farmer, 260 feet; Kentucky Oil Corp.'s No. 1 Wainscott, 1,140 feet; Log Cabin Oil Co.'s No. 1 Calvin, 325 feet; Nash and others' No. 4 Williams, 2,135 feet; Phillips Petroleum Co.'s No. 2 Corbett, 960 feet; Plains Production Co.'s No. 1 Butler, 1,014 feet; Reed and others' No. 1 Gragg, 853 feet; Simms Oil Co.'s No. 1 Goldston, 3,760 feet; No. 1 McCaghren, 350 feet; Stovall and others' No. 4 fee, fishing at 2,730 feet; Sun Oil Co.'s No. 1 Robinson, drilling at 840 feet; Swastika Oil Co.'s No. 1 Wilson, 150 feet; The Texas Co.'s No. 5 Boren, 610 feet; Texas Pacific Coal & Oil Co.'s No. 2 Kunkel, sand at 1,201 feet; Texas Unity Oil Co.'s No. 1 Campbell, drilling at 650 feet; Tidal Oil Co.'s No. 18 Campbell, 468 feet; Wilehead and others' No. 1-B Belknap, 2,820 feet.

Stephens County

Brown & Co.'s No. 4 Akin, drilling at 2,500 feet; Corzelius Brothers' No. 1 Goforth, 500 feet; Eidson and others' No. 1 Houston, 580 feet; Hughes and others' No. 5 Gandy, 1,475 feet; No. 1 Long, underreaming; Landreth Production Co.'s No. 1 Akin, setting casing at 1,975 feet; No. 1 Elliott, fishing at 3,849 feet; No. 1 Guest, drilling at 3,360 feet; Magnolia Petroleum Co.'s No. 2 Akin, 1,500 feet; McKinney and others' No. 2 McCleskey, 2,278 feet; Roth and others' No. 1 Suddeth, showing oil at 3,758 feet; Producers Union Oil Co.'s No. 1 Moon, drilling at 2,272 feet; Scanlon and others' No. 1 Ming, drilling at 3,710 feet; States Oil Corp.'s No. 2 Hawkins, 2,675 feet; Texas Pacific Coal & Oil Co.'s No. 7 Adams, 3,720 feet; No. 58 Binney, 500 feet; No. 4 Hand, 3,675 feet; No. 10 Veale, 1,250 feet.

Eastland County

Bateman and others' No. 1 Motes, spudding; Corzelius Brothers' No. 1 Whitson, setting casing at 2,260 feet; Holmack Oil Co.'s No. 1 Allison, setting casing at 1,300 feet; Lightfoot and others' No. 3 Allen, drilling at 2,450 feet; Magnolia Petroleum Co.'s No. 9 Hawkins, 250 feet; Romert Oil Corp.'s No. 1 Gullett, 750 feet; No. 7 McMinn, spudding; Teatsworth and others' No. 8 Scott, spudding; Bowden and others' No. 1 Harris, drilling at 1,030 feet; Goodwin and others' No. 1 Burnett, 3,339 feet; Leon Oil Co.'s No. 1 Kimbrough, 1,900 feet; Pitzer and others' No. 1 Martin, 1,992 feet; Root and others' No. 1 Strickland, 320 feet; Root and others' No. 1 Luse, cleaning out at 3,336 feet; Rumbough and others' No. 1 White, underreaming.

Callahan County

Adams and others' No. 1 Windham, drilling at 300 feet; Brannon and others' No. 1 Block 40, 340 feet; Conway and others' No. 1 Thorn, 1,190 feet; Cranfill and others' No. 1 Smith, 1,340 feet; Kirk and others' No. 1 Block 3, 1,200 feet; McCamey and others' No. 1 Block 7, 780 feet; Mook Texas Oil Co.'s No. 1 Baum, 700 feet; No. 4 McDonough, 1,400 feet; No. 6 McDonough, 1,280 feet; Petroleum Exploration Co.'s No. 1 Smart, 1,246 feet; Weiler Brothers' No. 1 Block 32, 1,180 feet.

Brown County

Conyon Oil & Gas Co.'s No. 1 Keenig, setting casing at 980 feet; Carter and others' No. 1 Jones, spudding; Conway Brothers' No. 3 Chambers, drilling at 590 feet; Cosden and others' No. 4 Westerman, 1,190 feet; Dozier and others' No. 1 Byrd, 535 feet; Gholson and others' No. 1 Teague, 590 feet; Gilman and others' No. 6 Chambers, 300 feet; No. 7 Chambers, 600 feet; Hill and others' No. 1 Newton, 1,100 feet; Huffman and others' No. 1 Kilgore, 840 feet; Hutton and others' No. 1 Mauldin, spudding; Keough Brothers' No. 1 Wheeler, drilling at 580 feet; Lowe and others' No. 1 Everage, 540 feet; Mount and others' No. 1 Gaines, 590 feet; Mulloy and others' No. 4 Prather, 840 feet; Prairie Oil & Gas Co.'s No. 12 Gaines, 1,100 feet; Rathbolt and others' No. 1 Jones, spudding; Shodbolt and others' No. 1 Lewis, drilling at 300 feet; Simms Oil Co.'s No. 5 Gaines, 1,200 feet; Stone & Co.'s No. 5 Gunn, 1,100 feet; Boysen and others' No. 1 Smith, 780 feet; Hart and others' No. 1 Brooks, cleaning out at 1,200 feet; Thompson and others' No. 1 Ward, fishing at 1,589 feet; No. 1 Wood, fishing at 1,589 feet; Treat & Co.'s No. 1 Anderson, spudding.

Reagan County

Big Lake Oil Co.'s No. 51 University, fishing at 2,485 feet; No. 52 University, fishing at 2,510 feet.. No. 53 University, drilling at 2,825 feet; No. 55 University, 2,810 feet; No. 57 University, 1,650 feet; No. 58 University, 1,060 feet; No. 59 University, 1,305 feet; No. 60 University, 455 feet; No. 61 University, 400 feet; No. 62 University, spudding; Milham Oil Corp.'s No. 1 University, underreaming; Peer Oil Corp.'s No. 1 Sawyer, setting casing at 425 feet; Texon Oil & Land Co.'s No. 33 Group 1 University, drilling at 2,650 feet; No. 37 Group 1 University, 2,700 feet; No. 1-A Group 1 University, 1,875 feet; No. 4 Group 2 University, 3,010 feet.

BROWNELL CONDEMNS BOOTLEGGER SUPPLY

By H. F. Brownell*

By reason of the recent Supreme Court decision, the participation of the State in the gasoline business is for the present removed as a serious menace to our business, but with removal of the State as a factor, there has appeared an equally serious menace to the stability of the oil industry not only in South Dakota, but in other States as well.

I refer now to what has come to be popularly known as the "gasoline bootlegger." This term seems to be used to cover all sorts of people who get together enough money to buy a tank, a broken-down pump and one carload of gasoline and who start selling gasoline at cost with no regard for the expense of the operation and with the intention either to build a gallonage in that manner and later on raise their prices to a profitable basis, or with the intention to give their friends and neighbors gasoline at cost. Whether or not they will eventually develop into business men or continue to be philanthropists, it is difficult to say. Quite likely they do not know themselves just what it is they are after.

The cooperative gasoline station is appearing here and there and there is a considerable likelihood that the movement will increase. Plainly it is not possible for the legitimate oil dealer to compete with these various classes of gasoline peddlers and still maintain the present high standard of public service without finding himself in the bankruptcy courts.

So long as it is possible for any man to buy a carload of gasoline at the lowest market price merely because he has the money with which to pay for it, just so long it will not be possible to clarify this difficult situation. It is an astonishing situation. Ours is about the only great industry that fails to distinguish between legitimate and illegitimate channels of trade. It is hardly possible in any other industry for anyone but legitimate merchants in that industry to secure favorable prices on commodities, but in the gasoline business any man with the money can buy one carload of gasoline at substantially the same price that a well rated jobber pays for a trainload.

*Before South Dakota Independent Oil Jobbers Association, Sioux Falls.

It is this deplorable fact that was chiefly responsible for the gasoline war in South Dakota. One of our largest refineries was perfectly willing to sell the Highway Department of the State, which is nothing more or less than a fairly good sized consumer, a single carload of gasoline at the same price he would have charged any of us for a trainload of the same product. We shall never be able to clear the industry of this deplorable situation until the refiner comes to himself and discontinues this ridiculous practice. There is no reason in the world why the refiner should not make a clear distinction between this class of gasoline buyers known as cooperatives, big users, and bootleggers, and charge them a higher price for a carload of gasoline than he charges his legitimate outlet and why in the name of common sense they have not been able to see it, I am at a loss to understand.

Their only answer to this argument is that if they don't take the business, some other refiner will. This is quite true, but why the other refiner to whom they refer in this apology cannot himself come to an understanding of his responsibility to the jobber who handles his product, is beyond comprehension. Sometimes I fear that the refiner does not have the disposition to help clarify the situation and that the great combinations in the oil industry welcome a chaotic condition of this kind foreseeing that the inevitable result of this policy will be the elimination of what is known as the independent jobber and the gathering of this business into their own combination. If this is not their aim or hope, then it is high time they bestirred themselves to correct a condition over which they, collectively, have absolute control. I can see only one means we have at our hand in this respect and that is for every independent jobber to refuse absolutely to purchase gasoline from any refiner who persists in the policy of selling a carload of gasoline to any man who has the money at the lowest market price and thus creating for us a kind of competition which spells inevitable disaster.

AD VALOREM OIL TAX PETITION IS SUSTAINED

OKLAHOMA CITY, Okla., Jan. 16.—An opinion of the State Supreme Court, written by Justice J. I. Phelps and concurred in by all other members of the court but three, holds valid and sufficient petitions filed with the secretary of State by Campbell Russell of Oklahoma City asking that an election be called to submit an initiated measure proposing that the gross production tax on oil shall be equal to the average of the ad valorem tax on other property. Whether Governor Trapp will have the measure submitted at the primary election or the general election this year the executive is to decide.

Oil interests opposed the measure on the theory that it would increase the gross production tax to possibly 4.5 per cent from the present fixed rate of 3 per cent. Russell says that the average increase will be only about .7 per cent.

The measure was attacked before the secretary of State on the ground that all of the 45,436 signatures it contained were not secured in accordance with law. An appeal was taken to the Supreme Court and that body held that only 1,403 names appeared to have been secured in contravention of the law. The court held that failure of the petition circulator to secure street addresses of signors in cities of the first class did not invalidate the signatures; that it was not an error for the Taxpayers' League, which Russell represents, to initiate the measure and that children under age were not disqualified for circulating such petitions. The oil interests had challenged 5,645 names because of imperfect addresses and 14,381 names because they were secured by paid circulators.

Under this measure the State Board of Equalization each year will fix the rate of gross production tax on oil and gas. Under the 3 per cent rate the State, during the last few years, has collected over $7,000,000 a year.

Oil Securities Were Active and Firm

Associated Oil Co. Issue Reached a New High for the Year at 53. Recession in Oils Not Unwelcome as Reminder for Caution

By N. O. Fanning
Room 543, No. 30 Church St., New York

NEW YORK, Jan. 18.—Oil securities were active and firm during the past week. Associated Oil made a new high at 53. Chesebrough Manufacturing held near its high for the year.

The downward trend in oil securities since January 1 has surprised many investors and stock traders who looked for the oils to lead the stock market toward higher levels.

On the other hand, many observers are not sorry to see them go down a little because they feel a sharp upswing would breed over-optimism. In 1925 and 1924 oil stocks shot upward during the first two months only to fall off during almost the entire remaining months.

Barnsdall-Waite Phillips

The acquisition of Waite Phillips by Barnsdall Corp. is looked upon as the first step in an assembling of Mid-Continent properties by Blair & Co., New York bankers, who are becoming more largely interested in the oil business.

Incidentally, the renewed interest taken in the oil business by New York banking houses is based on the belief that the business is on the eve of a prosperous era.

Oil Well Supply

Oil Well Supply stock was weak, dropping to a new low of 31½, of 7 points from the 1925 high. The decline in the stock has mystified those who subscribed to it at 36 during the year past. Blair & Co. handled that offering, and are extremely optimistic with regard to the position and outlook for the company. The name "Oilwell" is coming to be known better and better abroad, although it has for years been well established in some foreign countries. It is believed the foreign field for oil well equipment is just opening up.

Standard of New Jersey

The common stock of the Standard Oil Co. of New Jersey continues to sell around 45, as against a high for 1925 of 47½ made early in that year. This is despite the fact that stocks of its subsidaries are selling at new high prices.

Barnsdall Corp. Report

In connection with acquisition of the Waite Phillips Co., Barnsdall Corp. and subsidaries have issued a consolidated balance sheet as of November 30, after giving effect (a) to the acquisition of assets, property and business of Waite Phillips Co.; (b) the issuance of $25,000,000 new debentures and proposed sale of 227,738 shares of capital stock; (c) retirement of Barnsdall Corp. 8 per cent bonds and sundry other indebtedness; (d) the disposition of capital stock owned in Potter Gas Co. and Dempseytown Gas Co. consummated during December, 1925.

Assets

Oil and gas properties, etc., less depr. and depletion	$58,638,294
Investments in and advances to affil. cos. not controlled	788,350
Sinking fund	82,916
Bransdall stock in treas. at par	430,400
Deferred charges to operations	196,192
Cash and current assets	8,833,438
Total	$68,969,590

Liabilities

Barnsdall Corp. capital	$28,897,650
Capital stock of subsidiaries	952,249
Funded debt Barnsdall Corp. and subsidiaries	25,000,000
Other fund. dept, purchase money obligations, car trust notes	1,216,116
Advance sales oil	176,237
Conting. liability	223,498
Current liabilities	1,653,842
Surplus	10,839,998
Total	$68,969,590

Combined earnings of Barnsdall and subsidiaries and Waite Phillips Co., available for interest, Federal taxes, reserves for depletion and depreciation, etc., are estimated for 1925 at $11,296,055.

Following closely upon the election of new officers and directors of the Barnsdall Corp. last week, the New York Curb admitted to trading the issue of bonds which that concern offered to the public.

The issue is $25,000,000 of 6 per cent bonds due in 1940, and they are priced at $100 each. The holder of each $1,000 worth of bonds has the right to subscribe for 20 shares of the Class "B" stock at $25 per share for a period of five years ending December 15, 1930. The issue was heavily oversubscribed and allotments were cut down sharply. Proceeds from the sale of the bonds will be used to pay for the properties of the Waite Phillips Co., which were acquired by the Barnsdall Corp.

Arrangements have been made to Amer icanize the Amerada Petroleum Corp., organized in 1920 by Lord Cowdray to engage in the oil business in the Mid-Continent Field. The property will be taken over by American interests, and it is planned to extend operations into Texas. Heretofore the company's operations have been confined to Kansas and Oklahoma. Financing in this market of the purchase from Lord Cowdray is being arranged. The details of the operation will be announced within the next 10 days. The financing will amount to about $10,000,000.

North Central Texas Oil Co.

Taylor, Thorne & Co. announce that they are privately selling 100,000 shares of stock of the North Central Texas Oil Co. of which 40,000 shares represent former holdings of estates and individuals, and 60,000 shares treasury stock. Proceeds from sale of treasury stock will be used for a further expansion of the business.

Venezuelan Oil Concessions, Ltd.

Reports from London indicate internal conflict for control of the Venezuelan Oil Concessions, Ltd., is in progress. Royal Dutch-Shell interests, who have almost majority interest and are managing the property under contract, seek to control the board, but are opposed by directors C. S. Gulbenkian and A. E. K. Cull. The complaint is made that Shell has not given the best market price for oil produced, and objection has been made to Shell's seeking to direct V. O. C.'s output exclusively to Shell refineries.

Standard of California

A special meeting of stockholders of the Standard Oil Co. of California has been called to be held on February 10, 1926, for the purpose of considering and voting upon a proposition to reorganize the company by the sale, assignment, transfer and conveyance of the assets of the company to a new corporation. The direction of the new company will be under the management of the present Standard Oil Co. The name "Standard Oil Co.," or substantially that name, will be retained for the new company.

The Pracific Oil Co. owns in fee in excess of 261,000 acres of land in the San Joaquin Valley in California. The present crude oil production of the Pacific Oil Co. is 55,000 bbls. per day, and in addition has a shut-in production of 3,700 bbls. per day.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

Stocks—	Par	Clos. Quot., Jan. 18	Jan. 11	1925 High	1925 Low	1924 High	1924 Low	1923 High	1923 Low
American Republics	..	*68	70	79¾	48	48	25	..	..
Associated Oil	25	52½	50	47¼	32	34⅝	27⅝	29½	29⅛
Atlantic Ref., com.	100	*106	106⅝	117½	93½	140½	78½	100	93⅝
Barnsdall "A"	25	30⅝	32	33⅛	18⅝	29½	14	37	9⅞
California Pet., com.	25	31⅞	32½	34⅝	23⅞	29	19⅞	28½	17½
General Petroleum	25	56	57	59	42	45	38⅝	..	..
Houston Oil	100	68	70½	85	59	82½	61	78	40⅜
Independent Oil & Gas	..	27⅛	31⅜	41⅜	13½	16¼	5⅜	11¼	3⅜
Indian Refining	10	11¼	11⅜	14¼	5½	7	8⅝	8½	4
Louisiana Oil	10	17½	17⅞	23⅜	13⅜	..	..	..	..
Maracaibo	..	25¼	26½	35½	20⅜	37½	25⅜	28¼	16
Marland	..	55⅜	57⅝	60¼	32⅝	42	29	50⅝	18½
Mexican Seaboard	..	10½	10½	22½	9	25⅜	14½	19⅝	6⅜
Mid-Continent Pet.	..	34½	35	38	26⅜	40¼	22⅜	62¼	22⅜
National Supply	50	57	56⅜	71	54⅜	72½	54	68	54
Oil Well Supply	25	32⅞	32⅞	38	33⅜	..	..	..	..
Pacific Oil	..	76⅜	76¼	78½	51¼	58¼	45	52½	31½
Pan. Amer. P. & T., com.	50	69	67⅞	83⅞	59½	65	44⅜	83½	53
Pan. Amer., Western B.	..	42	40⅜	49⅜	37¼	..	..	..	..
Phillips Pet.	..	44	44¼	47½	36¼	42¼	28½	69⅝	19⅜
Producers & Refiners	50	14⅛	15⅛	32⅝	12½	43⅛	29⅜	58¼	17½
Pure Oil, com.	..	29¼	29⅜	33⅜	25½	30¼	20	32	16¼
Royal Dutch, N. Y., sh.	13.40	53½	56¼	57⅞	48¼	53½	40⅜	65½	40½
Shell Transport	10	*48	48¼	49	39⅜	42	33	41¼	29½
Shell Union, com.	..	26	27⅝	28⅝	21⅝	22⅜	15⅜	19¼	12⅜
Simms Pet.	10	25½	25½	28½	17⅜	24	10⅜	16⅜	6½
Sinclair Consolidated, com.	..	21⅞	21⅝	24⅞	17	17½	15	39⅜	16
Skelly Oil	25	30⅜	30⅜	32½	21⅜	29	17½	35	12⅛
Standard of California	25	57¼	58⅜	67¼	51½	68⅛	55½	64½	47¼
Standard of N. J., com.	25	44	44⅝	47½	38⅜	42½	33	44¼	30⅞
Sun Oil Co.	..	38½	39¼	43⅞	38¼	..	..	..	..
The Texas Co.	25	51⅛	52⅛	55	42⅜	45⅝	37⅜	52⅞	45⅝
Texas Pacific Coal & Oil	10	17½	18¼	23⅜	11	15¼	8½	23⅜	5½
Tide Wated Oil (new)	..	36⅜	34½	‡152	122	151	116¼	144	94
Transcontinental	..	4	4⅝	5⅞	3½	6¼	3⅜	14½	1¼
Union Oil of California	25	38	38⅝	43⅜	33¼	39	35½	..	..
Union Tank, com.	100	*92	92	‡134	118	132⅞	94	114	106
White Eagle Oil & Ref.	..	26½	27½	31⅝	25⅝	29⅜	23⅛	30⅜	29½
Standard Oils									
Anglo-American Oil	£1	18⅞	19⅜	26⅜	17⅛	18⅜	14⅝	19⅜	13½
Borne Scrymser	100	*230	*228	240	205	264	150	153	210
Buckeye Pipe Line	50	56¼	55⅝	72	53½	85½	51	94	57½
Chesebrough Mfg. Co.	25	69⅞	69½	74	48¼	52½	29¼	340	205
Continental	10	23⅞	24⅛	31⅛	21⅞	..	..	..	..
Crescent Pipe Line	25	*15	*15	17½	10	20	11¼	25	15
Cumberland Pipe Line	100	*135	*134	156	128	148	108	117	80
Eureka Pipe Line	100	*60	*61	96	61¼	105	74	117½	87
Galena Signal, com.	100	29	29	68½	23½	69⅜	52½	78	55
Humble Oil & Refining Co.	25	89⅜	92	99	42½	43⅜	36	41	28¼
Illinois Pipe Line	100	136½	135½	154½	124	161	123	171	115
Imperial Oil (Ltd.)		56⅝	36¼	39¼	27¼	119	99	123	92
Indiana Pipe Line	50	58⅛	58⅝	84	57⅛	110	66	103	81
International Pet. Co.	10	32½	32½	35⅜	22½	24⅜	16⅞	24⅜	13½
National Transit Co.	12.50	*18	18⅛	25½	16½	25⅞	20⅝	20	19½
New York Transit	100	46	49	79	50	97	54½	138	70
Northern Pipe Line	100	*71	71¼	88	67½	107½	72	111	96
Ohio Oil Co.	25	63⅝	64	75¼	60	79⅛	53	85⅝	48⅜
Penn.-Mex. Fuel	25	*20	20	44	19	35⅝	27	45	10½
Prairie Oil & Gas	25	55½	55⅝	65½	45⅞	269	193	272	152
Prairie Pipe Line	100	125½	126½	129⅝	106	111	100	117	93
Solar Refining Co.	100	*200	203	259	200	240	170	212	161
South Penn Oil	100	185	190	197	139	176	117	196	100
Southwest Pa. Line	100	*52⅜	*52⅛	84	50	89	68	89	66
Southern Pipe Line	100	*65	*63	103	63	100	80½	116	87
Standard of Indiana	10	66¼	66	70⅝	59½	69⅝	54¼	69⅞	48½
Standard of Kansas	25	33⅛	33½	46	30¼	50½	32½	56¼	36½
Standard of Kentucky	25	128¼	132¼	137	114⅝	121⅞	101	109½	76
Standard of Nebraska	100	241	*243	270	231	262	198	280	186
Standard of New York	25	36½	46¼	48⅝	40	48	37⅝	49⅝	35½
Standard of Ohio, com.	100	345	351	369	333	327½	277	320	270
Swan & Finch, com.	25	*20	*21	27	12	28	20	..	..
Vacuum Oil	25	106⅝	104	109½	80½	83½	50½	55⅛	40
Washington Oil	..	*65	*50	55	30	30	25	28	20¼
Miscellaneous									
Gulf Oil Corp. of Pa.	25	88½	92¼	98¼	63½	67⅝	56	68¼	45⅜

*Bid, no sales. ‡Old stock.

The Oil and Gas Journal's weekly average of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Jan. 18	57.38	Dec. 14	56.89	Nov. 9	56.47		
Jan. 11	57.55	Dec. 7	57.99	Nov. 2	55.67		
Jan. 4	59.15	Nov. 30	56.93	Oct. 26	55.51		
Dec. 28	59.40	Nov. 23	56.49	Oct. 19	50.03		
Dec. 21	56.86	Nov. 16	57.31	Oct. 10	53.18		

TO BUY EQUIPMENT

A. P. Serebrowsky

A. P. Serebrowsky, president of the "Azneft," Government Oil Fields, Baku. Union Soviet Socialist Republic, will arrive in this country at the end of this month. He is heading a commission for buying oil field equipment. The commission consists also of the representatives of the "Embaneft" and "Grosneft," the other Government oil fields. Mr. Serebrowsky will land at New York, proceeding thence to the Mid-Continent and California. The length of his stay in this country has not been determined. The commission is visiting Germany and England at the present.

ALBUQUERQUE ENTERTAINS OIL MEN EN ROUTE TO INSTITUTE MEETING

ALBUQUERQUE, N. Mex., Jan. 16.—The Oil and Gas Journal special trains, en route to the convention of the American Petroleum Institute at Los Angeles, laid over here six hours today, during which time the Chamber of Commerce entertained the delegates and their wives by sightseeing tours, receptions and the staging of Indian dances.

At the principal reception in the plaza opposite the Franciscan Hotel, Governor A. T. Hannett of New Mexico and Mayor Clyde Tingley of Albuquerque welcomed the oil men, and J. C. Donnell, president of the Ohio Oil Co., and Henry L. Doherty, president of H. L. Doherty & Co., responded. Both oil men stressed the importance of New Mexican oil prospects and Mr. Donnell traced the history of the growth of Tulsa and of Mid-Continent operations as illustrative of the remarkable development connected with petroleum enterprise. He said he was going to cast his vote at Los Angeles and use all his influence for Tulsa for the institute meeting next year.

There were dances by four Indian tribes, a map of explanation by J. H. Hasheider, and tea for the ladies at the Womans Club. A display consisting of samples of oil, geological specimens, maps prepared by the University of New Mexico, United States Forest Service, New Mexico School of Mines and committee of New Mexico oil operators was given at the Franciscan Hotel.

PASSENGER LIST
The Oil and Gas Journal Special Trains to A.P.I. Meeting

SECTION ONE

	Car	Sec.
A		
Applegate, F. D., manager tank car sales, Marland Refining Co.	531	D
Archer, M. T., chief engineer, National Supply Co., Toledo	533	5
B		
Bernard, H. B., vice president Sinclair Oil & Gas Co., Tulsa	531	B
Mrs. H. B. Bernard.		
Brigham, Henry H., president North American Car Co., Chicago	502	D
Mrs. Henry H. Brigham and Miss Guendolen, Washington, D. C.		
Burke, George A., Standard Oil of Ohio, Cleveland	502	F
Mrs. George A. Burke.		
C		
Campbell, J. H., Industrial Petroleum Corp. of Illinois, Tulsa	535	4
Camp, H. W., general superintendent Empire Refining Co., Tulsa	533	9
Close, A. S., The Hickok Production Co., Toledo, Ohio	533	5
Collins, Samuel C., vice president Marland Refining Co., Ponca City, Okla.	531	D
Coyl, H. E., manager Standard Transit Co., Sharon, Pa.	535	A
Crosbie, J. E., president Central National Bank, Tulsa	532	E
D		
Davies, H. G., president Superior Oil Corp., Lexington, Ky.	533	6
Deaner, J. J., president Windsor Oil & Gas Co., Okmulgee, Okla.	532	C
Mrs. J. J. Deaner.		
Dickson, J. H., vice president Zahnizer Oil Corp., Tulsa	532	F
Donnell, J. C., president Ohio Oil Co., New York City	502	A
Donnell, O. D., vice president and treasurer Ohio Oil Co., Findlay, Ohio	502	B
Dye, George A., vice president H. F. Wilcox Oil & Gas Co., Tulsa	535	7
F		
Fitzpatrick, E. F., manager American Petroleum Products Co.	531	E
Mrs. E. F. Fitzpatrick.		
Foster, George D., secretary Devonian Oil Co., Tulsa	534	B
Francisco, W. R., secretary-treasurer Shaffer Oil & Refining Co., Tulsa	534	E
Funk, A. L., independent producer, Tulsa	535	B
G		
Gay, Frederick W., assistant to president, De LaVergne Machine Co., New York	502	G
Gerteis, C. E., manager refinery division, White Star Oil Co., Detroit	531	G
Mrs. C. E. Gerteis.		
Gibson, Addison H., president Gibson-Zahnizer Oil Corp., Tulsa	532	F
Goodwin, Rome, president Toledo Oil Co., Toledo, Ohio	502	I
Mrs. Rome Goodwin.		
Gray, J. L., vice president and general manager Shaffer Oil & Refining Co., Tulsa	534	D
H		
Harris, Hu. M., chief engineer, Lucey Manufacturing Co., Chattanooga, Tenn.	535	9
Hopp, Francis T., secretary and treasurer Skelly Oil Co., Tulsa	534	C
Hudson, J. H., contractor, Ardmore, Okla.	535	3
K		
Kennedy, Dr. S. G., and daughter, Tulsa, Okla.	532	G
Klappenbach, E., The Oil and Gas Journal, Chicago	534	A
Krause, C. R., vice president Lee C. Moore & Co., Tulsa	531	A
L		
Larkin, J. J., Larkin Packer Co., St. Louis, Mo.	533	8
Mrs. J. J. Larkin.		
Lush, W. F., Lush & Holbrook, Pittsburgh, Pa.	502	H
Lydon, T. F., vice president Roxana Petroleum Corp., St. Louis, Mo.	532	A
Mrs. T. F. Lydon.		
M		
Mahan, F. M., National Turnbuckle Derrick Co., Tulsa	533	2
Mascho, S. W., secretary Independent Torpedo Co., Findlay, Ohio	502	C
Mrs. S. W. Mascho.		
Mohler, F. W., sales manager International Derrick & Equipment Co., Dallas	535	5
Moody, W. E., refinery superintendent Shaffer Oil & Gas Co., Tulsa	534	E
Moore, E. H., president Independent Oil & Gas Co., Tulsa	532	D
Mrs. E. H. Moore.		
Morris, Clarence, advertising manager The Oil and Gas Journal, Tulsa	534	A
Mc		
McFayden, John, vice president Rocky Mountain Division Ohio Oil Co., Casper	502	A
McIntyre, E. F., general manager International Petroleum Exposition, Tulsa	531	C
Mrs. E. F. McIntyre.		
McIntyre, Gene, D & B Pump & Supply Co., Dallas, Tex.	533	14
McWilliams, J. R., production engineer, Skelly Oil Co., Tulsa	533	15
N		
Nicklos, E. J., division manager The Texas Co., Tulsa	533	10
P		
Pielsticker, F. A., vice president Skelly Oil Co., El Dorado, Kans.	534	C
Prescott, C. S., vice president The Prescott Co., Menominee, Mich.	502	G
R		
Reid, J. C., sales manager Toledo Oil Co., Toledo, Ohio	532	B
Mrs. John C. Reid.		
Riddle, L. D., vice president and assistant general manager Shaffer Oil & Ref. Co.	534	D
Roe, H. W., traffic manager Cosden & Co., Tulsa	535	8
Mrs. H. W. Roe.		
Rose, A. F., district superintendent Tidal Oil Co., Tulsa	535	6
S		
Sharpe, R. J., General American Tank Car Co., Tulsa	531	A
Skinner, R. W., Skinner Brothers Belting Co., Tulsa	535	2
Splane, W. W., Oil City, Pa.	531	I
Mrs. W. W. Splane.		
Sweet, C. H., vice president Central National Bank, Tulsa	532	E
T		
Texter, H. G., district sales manager Standard Seamless Tube Co., Tulsa	533	12
Thompson, F. S., Southwest sales manager Standard Tank Car Co., Tulsa	535	A
W		
Walker, H. J., manager western division and Mid-Continent Sec., Andrews Steel Co., Tulsa	531	H
Mrs. H. J. Walker.		
Waters, M. E., manager Smith Separator Co., Tulsa	534	B
Watterson, J. A., contract department The Standard Oil Co., Cleveland, Ohio	502	E
Mrs. J. A. Watterson.		

SECTION TWO

A		
Ackerman, G. H., secretary-treasurer James B. Berry's Sons Co., Chicago	503	G
Airey, Richard, vice president Shell Union Oil Co., New York, N. Y.	501	A
Mrs. Richard Airey and daughter.		
Anderson, J. S., Anderson-Prichard Oil Corp.	610	B
Mrs. J. S. Anderson.		
Andrews, T. C., sales agent, American car and Foundry Co., St. Louis, Mo.	505	11
B		
Ballin, A. E., president McIntosh & Seymour Corp.	505	10
Beecher, C. E., production engineer, Empire Companies, Bartlesville, Okla.	501	6
Beers, P. C., president Beers Oil Corp., Oil City, Pa.	500	D
Mrs. P. C. Beers.		
Beroth, Carl, Acme Petroleum Co., Chicago, Ill.	503	C
Brown, R. A., sales director Pennzoil Co.	503	E
C		
Caldwell, G. R., A. Leschen & Sons Rope Co., Tulsa	504	1
Caudill, S. J., consulting petroleum engineer, Tulsa, New York, Los Angeles	504	9
Clark, J. D., vice president Standard Oil Co. of Indiana	503	D
Mrs. J. D. Clark.		
Clark, C. P., vice president Clark Brothers Co., Olean, N. Y.	501	10
Converse, E. M., Dearborn Chemical Co., Chicago	610	F
Cox, Rupert, Central Oil Co., St. Joseph, Mo.	505	6
Mrs. Rupert Cox.		
Cross, Raymond, president United Natural Gas Co.	503	H
Cushing, W. T., Dearborn Chemical Co., Chicago, Ill.	610	F
D		
Danker, D. J., Brookline, Mass.	505	14
Davis, G. S., Crosby & Davis	504	8
Deacon, Wm. T., St. Louis Surfacer & Paint Co.	505	9
Derby, A. L., president Derby Oil Co., Wichita, Kans.	504	A
Mrs. A. L. Derby.		
Doherty, H. L., president H. L. Doherty & Co., New York	506	I
E		
Egloff, Gustav., Ph.D., Universal Oil Products Co., Chicago	505	7
Emerson, A. H., S. M. Jones Co., Toledo, Ohio	505	16
Mrs. A. H. Emerson.		
F		
Fanning, L. M., The Oil and Gas Journal, New York	506	E
Greve, E. E., Oil Well Supply Co., Pittsburgh, Pa.	504	6
H		
Hagadorn, H. D., Crown Central Petroleum Co., Olean, N. Y.	506	C
Mrs. H. D. Hagadorn.		
Hunter, G., general manager Emlenton Refining Co., Emlenton, Pa.	503	F
J		
Johnson, H. G., postmaster, Oil City, Pa.	503	G
Jones, P. C., president S. M. Jones Co., Toledo, Ohio	504	4
K		
Knapp, Arthur, U. G. I. Co., Philadelphia, Pa.	503	B
Knox, H. W., T. & P. Coal & Oil Co.	610	D
L		
Landreth, J. P., Landreth Oil Co., Evanston, Ill.	506	A
Mrs. J. P. Landreth, Jack and Ginger Landreth.		
Lamberton, R. E., counsel, Sun Oil Co.	501	3
Locke, A. T., Chicago, Ill.	503	C
Lockwood, C. D., The Oil and Gas Journal, Tulsa	506	E
M		
Marcell, L. L., president White Eagle Oil & Refining Co.	504	B
Mrs. L. L. Marcell.		
Messer, S. vice-president James B. Berry's Sons Co., Oil City, Pa.	503	H
Miller, H. I., Detroit Graphite Co., Chicago, Ill.	505	4
Mitchell, Harry, Emlenton, Pa.	503	F
Murphy, P., Wall Street Journal, New York City, N. Y.	503	B
N		
Nye, E. L., Freeman & Co.	610	G
Mrs. E. L. Nye.		
O		
Oliver, Earl, Ponca City, Okla.	610	E
Mrs. Earl Oliver.		
P		
Parmelee, C. L., engineer, New York City	500	A
Penn, J. R., president T. & P. Oil Co.	610	D
Prichard L. H., Anderson-Prichard Oil Corp.	610	A
Mrs. L. H. Prichard.		
Prizer, E., chairman of board, Vacuum Oil Co., New York City	505	8
R		
Ratcliffe, George W., Ohio Fuel Corp., Pittsburgh, Pa.	505	3
Redman, J. T., Evanston, Ill.	506	B
Mrs. J. T. Redman.		
Reed, C. E., vice president Bridgeport Machine Co., Wichita, Kans.	610	C
Mrs. C. E. Reed and daughter.		
S		
Shapiro, Carl, secretary-treasurer Northern Oil Co., Virginia, Minn.	506	D
Mrs. Carl Shapiro.		
Spang, G. A., president Spang & Co., Butler, Pa.	501	1
Speller, F. N., engineer, National Tube Co., Pittsburgh, Pa.	504	5
Stitt, T. G., engineer, Pittsburgh Steel Products Co., Monessen, Pa.	504	7
Suhr, C. L., president Pennzoil Co.	503	E
Sweney, G. I., president Sweney Gasoline & Oil Co., Peoria, Ill.	610	H
Mrs. G. I. Sweney.		
T		
Thomas, L. E., president Reading Iron Co., Reading, Pa.	500	B
Mrs. Thomas.		
Thompson, J. F., division freight agent, A.,T.&S.F. Ry Co., Chicago, Ill.	505	15
Truesdell, Paul, National Petroleum News, Cleveland, Ohio	504	3
W		
Weir, Donald, Jefferson Union Co., Lexington, Mass.	504	2
Weiss, C. R., engineer, Link-Belt Co., Indianapolis, Ind.	501	7
Wolcott, T. A., G. T. A. A.,T.&S.F. Ry., Chicago, Ill.	610	I
Woodruff, G. C., Roxana Petroleum Corp.	503	I

NORTH TEXAS MARKET EXPORT PRICE STRONGER

FORT WORTH, Tex., Jan. 18.—Refined oils in the North Texas territory, with the exception of export gasoline and kerosene, were not exhibiting the strength at the end of the week that had been predicted earlier. Ful oil was about the only other commodity that maintained a fairly strong market throughout the week.

U. S. Motor took a jump to 10 cents the first of the week but at this price it became more or less a draggy market. There was no buying of any consequence. Later refiners were able to move only a fair volume at 9¾ cents. Quotations at the end of the week were 9¾ to 10 cents with only a small volume of trade.

Export gasoline was more active and the price was generally stronger. Early in the week the price was advanced from 12¼ to 12½ cents and this was maintained throughout the week. Buying was fairly good. One exporting concern moved out about 1,250,000 gallons from North Texas during the week and there were unconfirmed reports of other purchases. Some scattered sales of export gasoline were made along about the middle of the week at 12⅝ cents, but they were by no means representative of the general condition of the market.

Kerosene is still strong. The usual winter demand and the fact that refiners are making very little kerosene are responsible for the strength in this market. A quotation of 6 cents prevailed throughout the week on 41-43 water white kerosene with the prime white selling at 5¾ to 5⅞ cents.

The prices on natural gasoline are slightly less than those of a week ago. Grade A is quoted at the end of the week at 10¼ cents, grade B at 9½ cents and grade C at 9⅛ cents to 9¼ cents.

There has been practically no change in the condition of the gas oil market. Quotations range from 3½ to 3⅝ cents.

Fuel oil has maintained a good strong market. There has been a nominally strong volume of buying with prices in the Wichita Falls district ranging from $1.35 to $1.45 a barrel.

Refiners are optimistic. An early advance in the price of crude oil, which it is believed will materially strengthen the refined market is generally predicted.

EQUATORIAL OIL DEAL

BRADFORD, Pa., Jan. 16.—Negotiations have been entered into between Bradford persons and a syndicate to consider the disposal by the local parties of the operations of the Equatorial Oil Co., and 50,000 acres in South America. A. R. Johnson and Howard Yates have returned from New York and Philadelphia where they have been conducting the negotiations. An operating contract may be entered into. Ten Bradford persons control 40 per cent of the stock in the Equatorial Oil Co.

INDUSTRIAL GAS BURNER

The Webster Engineering Co., of Tulsa, Okla., has issued a folder on the "Webster Radiant Gas Burner for Industrial Use." This article of equipment is used extensively in gasoline plants and refineries. The burner embodies a new principle in burning gas for industrial use. By the use of a manifold, gas is distributed to a large number of X-shaped openings through a refractory material. According to the makers an oil burner may be used in connection with this burner.

REFINING AND MARKETING

Q. D. A. CONDEMNED BY JOBBERS' MEETING

The quantity discount agreements for the sale of gasoline to tank wagon and service station customers was condemned at a meeting of the presidents and secretaries of several of the State jobber associations held last week at the Pfister Hotel in Milwaukee. These agreements which were inaugurated by the Standard Oil Co. of Indiana in the Middle Western States last year provide for rebates to customers using large quantities. Similar agreements are now in effect in several other marketing areas.

After considerable discussion the association officials adopted the following resolution:

"That we are not in sympathy with the present form of rebates allowed by the Standard Oil Co. and others, through what is known as the Q. D. A. and do pledge ourselves to discourage its extension or further use.

"That we will use our influence to protest to the Standard Oil Co. and others against the further textension or use of the so-called Q. D. A.

"That where absolutely necessary we recognize that independent companies should either individually or collectively meet the Q. D. A. of the Standard Oil Co., but then only in manner and form as used by the Standard Oil Co.

TO INVESTIGATE Q.D.A. AS VIOLATION OF RULE

CHICAGO, Jan. 16.—Donald Montgomery of the Wisconsin State Bureau of Markets has announced that his organization will begin an investigation early in February of the Quantity Discount Allowance plan which was put into effect on July 1, 1925, by the Standard Oil Co. of Indiana. Since that time the plan has been generally copied by the larger oil companies which distribute throughout Wisconsin. Several hearings have been held in which representatives of the Standard Oil Co. and of the independent jobbers have been heard but no definite conclusion was reached. According to Mr. Montgomery, this hearing is for the purpose of determining if the plan constitutes fair trade practice in the oil industry. The Bureau of Markets exercises a general supervision on the industry and has made a number of rulings, the most important being that which obliges the sellers of gasoline to keep a public record of all sales and the prices charged. All price changes must be reported to the Bureau of Markets. One contention of the independent jobbers has been that the discount system was a violation of the rule of one price to all for the same product at the same place.

SKELLY AVERAGED 1700 CARS MONTHLY IN 1925

The Skelly Oil Co. during 1925 shipped an average of 1,700 tank cars of petroleum products a month, according to a report of A. F. Winn, traffic manager of the company. The products were shipped from the El Dorado, Kans., refinery of the company and the 10 natural gasoline plants which the company operates in Oklahoma and Texas.

The first of the year the traffic department of the company was moved from El Dorado to the Skelly building at Tulsa. The latter offices have constant communication with El Dorado by radio. The company so far as known is the only oil concern using the radio for the transaction of company business. Both Tulsa and El Dorado have complete sending and receiving equipment. Morse code wireless operators are used. This method of communication has been in constant service since 1922.

CALIFORNIA OPERATORS OBTAINING GREATER YIELD FROM CASINGHEAD

Operators of natural gasoline plants in California are showing a steady increase in the amount of gasoline recovered from casinghead gas according to data based on the Bureau of Mines reports for a nine months period ending December 1. Each of the five months has shown a greater recovery than that preceding. The average of .857 gallons per thousand feet in July was increased to 1.335 gallons in November.

Due to this increased recovery, the amount of natural gasoline produced in the West Coast area has also shown a steady climb. The 28,211,006 gallons produced in November established a new monthly record.

The following tables show the percentage of gasoline recovery, the amount of gasoline produced, the amount of natural gas treated and the disposition of the finished gasoline:

GASOLINE RECOVERED IN CALIFORNIA PER M.C.F. OF GAS TREATED
(In gallons.)

Type of plant—	July	August	Sept.	Oct.	Nov.
Oil absorption	.962	1.105	1.133	1.157	1.245
Compressor	.644	.928	.827	1.439	1.540
Combination compressor and oil absorption	.708	1.395	1.379	1.393	1.395
Combination oil and charcoal absorption	.044	.264	.208	1.5	1.548
Total	.857	1.184	1.176	1.297	1.335

NATURAL GAS TREATED IN CALIFORNIA
(In thousand cubic feet.)

Type of Plant—	July	August	September	October	November	Total
Oil absorption	8,829,504	9,005,273	8,966,462	10,073,718	11,267,895	48,142,852
Compressor	359,858	448,777	664,001	353,925	300,898	2,127,459
Combination compressor and oil absorption	9,548,437	10,692,071	10,912,117	8,842,256	7,224,478	47,219,359
Combination oil and charcoal absorption	1,442,763	1,573,721	1,697,192	2,375,004	2,339,374	9,428,054
Total	20,180,562	21,719,842	22,239,772	21,644,903	21,132,645	106,917,724

NATURAL-GAS GASOLINE PRODUCED IN CALIFORNIA
(Gallons)

Type of Plant—	July	August	September	October	November	Total
Oil absorption	9,179,378	9,952,693	10,161,237	11,659,328	14,027,072	54,979,708
Compressor	559,009	416,275	549,462	509,338	463,322	2,497,346
Combination compressor and oil absorption	13,483,193	14,916,679	15,044,874	12,315,693	10,081,902	65,842,341
Combination oil and charcoal absorption	324,224	415,669	353,652	3,562,532	3,621,330	8,277,407
Drip	5,679	6,357	17,131	18,365	17,380	64,912
Total	23,551,483	25,707,673	26,126,296	28,065,256	28,211,006	131,661,714

DISPOSITION OF NATURAL-GAS GASOLINE PRODUCED IN CALIFORNIA
(In barrels of 42 gallons.)
Data for July not available.

	August	Sept.	Oct.	Nov.	Total
Mixed with crude or unfinished oils	230,859	239,801	229,083	221,950	921,693
Blended at refineries	306,482	353,488	380,465	449,923	1,490,358
Unaccounted for	45,454	49,212	89,584	.....	184,250
Plant consumption, shortage and evaporation losses	20,906	21,554	14,364	17,592	74,416
Increase of stocks (add)	8,386	.....	.....	.....	8,386
Decrease in stocks (deduct)	.....	42,000	45,276	17,774	105,050
Total production	612,087	622,055	668,220	671,691	2,574,053

EASTERN BONDHOLDERS BUY CADDO CENTRAL

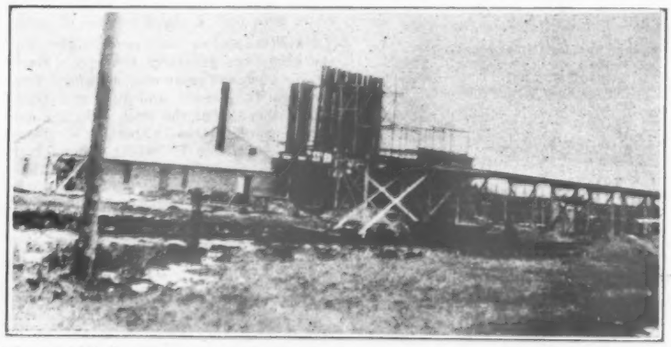
George L. Estabrook and James S. Clark, Philadelphia bankers, representing interested bondholders, during the past week purchased the properties of the Caddo Central Oil Refining Corp. and the Caddo Central Oil & Refining Co. at a receiver's sale for a consideration of $1,500,000. It is expected the sale will receive the final approval of the Federal Court at Shreveport, La., where the sale was held.

The sale was in execution of judgment in foreclosure and receivership proceedings instituted last year by the Bank of North America and Trust Co. of Philadelphia and the Guaranty Trust Co. of New York, trustees for the bondholders. It is one more step in clearing up the affairs of the Caddo Central interests which were placed in the hands of a receiver last October. Ben Johnson, president of the Commercial National Bank at Shreveport, La., and F. W. Garnjost, vice president and general manager of the Caddo Central Oil Refining Corp., were named receivers at that time.

The bondholders of the Caddo Central Oil Refining Corp. are the Bank of North America holding $1,685,233.66 of the bonds and the Guaranty Trust Co. holding $4,089,517.50 of the bonds. A recent appraisal of the properties placed the value of the properties at $2,578,160. The companies have two refineries in operation at Shreveport, La. The producing properties include wells in the Caddo, Bossier and Red River Parishes. Leases held total 32,000 acres.

COMPLETE 1,000-BBL. SKIMMING PLANT

The Alberta Refineries, Ltd., has practically completed the construction of its 1,000-bbl. skimming plant located at Edmonton, Alberta. The company, which was financed by Edmonton capital, expects to have the plant in operation in the near future. The crude supply will be obtained by tank car from the Kevin Sunburst and Wainright Pools.



View of the Edmonton, Alberta, skimming plant of the Alberta Refineries, Ltd.

The skimming equipment consists of a retort still from which, through the use of a separator, part of the vapors are taken off. From the separator the liquid passes to a shell still. The company expects to market the plant's output of gasoline and other products in Central Alberta. John L. Mercer is president of the company. A. H. Anderson is secretary.

HICKOK CO. PLANNING EXPANSION PROGRAM

TOLEDO, Ohio, Jan. 16.—The Hickok Producing Co., one of the largest independent jobbing concerns in Ohio, at its annual meeting held here this week announced a large expansion program for the coming year. The company has taken over the properties of the Radiant Oil Co. at Lima, Ohio, with marketing facilities in west Ohio and Michigan. Officials also announced that they had about completed negotiations for two other concerns. The company will build 50 more stations in this vicinity during the coming year, making a total of 200.

A 50 per cent stock dividend was declared in addition to the 12 per cent cash dividend. The capital stock will be increased from $1,250,000 to $5,000,000.

The company re-elected all officers and directors as follows: President, A. S. Hickok; secretary, A. S. Close; directors, the officers and C. F. Eisenhour, Frank Westcott of Toledo and C. B. Watson of the Pure Oil Co., Columbus.

The Hickok Co. also owns control of the Consolidated Gasoline Co. of Eastland, Tex., and the Breckenridge Gasoline Co. of Breckenridge, Tex., the annual meeting of both of which companies also were held here. Mr. Hickok was elected president of both companies.

CHICAGO TRADE NOTES

The Barrington Oil Co., C. C. Nye, president, with headquarters in Chicago and production and acreage in Oklahoma, has added the following to its board of directors: C. J. Farwell, C. O. Brown, Morris Jepson.

The Suburban Oil & Supply Co. of Oak Park, Ill., has increased its capital stock from $2,000 to $100,000.

Scott W. Prime, who has represented the Johnson Oil & Refining Co. of Chicago in Wisconsin, has left the organization and is reported to contemplate starting in business as a marketer of petroleum products. He has had many years' experience in all departments.

Edward Ennis, one of the best known Chicago oil men, is now associated with the McCormick-Foster Oil Co., selling oils to his old customers. He was until recently with the Lake Petroleum Co. and one of the organizers of the Ennis-Bayard Petroleum Co.

MOVES OFFICES

Carson Petroleum Co. has announced the removal of its Texas offices from Dallas to Wichita Falls. The new offices will be at 311 City National Bank building. C. W. Calhoon, Jr., will remain in charge.

Gasoline Recovered in One Operation

Tube and Separator Equipment Used at California Refinery. Gasolines Treated With Clay Mixture. Installation Compact

By George W. H. Reid

The Gilmore Oil Co.'s Twenty-Eighth Street refinery at Vernon, Calif., presents an interesting example of compact design and construction, in that the refinery with a capacity of 4,000 bbls. of crude daily is located on a tract of land in area of only 3½ acres. This plant is in the heart of the Los Angeles industrial district and though the site is limited to the small area mentioned, the company has established its main office and headquarters there, along with the 4,000-bbl. plant and some 60 tanks for storage, etc., ranging from 100 to 10,000 bbls. in size. This storage includes such items as crude, 20,000 bbls.; fuel, 10,000 bbls.; gasoline, 7,000 bbls.; kerosene, 8,000 bbls.; gas oil, distillates, lubricating oils, etc., being taken care of and making a total storage capacity of about 100,000 bbls. In addition, the treating equipment, foamite storage and equipment, pump houses, power house, along with a cannery capable of handling 4,000 cases, (10 gallons to the case), in 8 hours for the export trade, are located on the same property. Figure 1 is a general view of the arrangement of the plant. The buildings and equipment of the various departments are so well arranged and laid out that the close quarters are an aid rather than a hindrance in operation.

The distillation units, consisting of three tubular retorts, and three shell stills, along with the power house are constructed in the center of the tract.

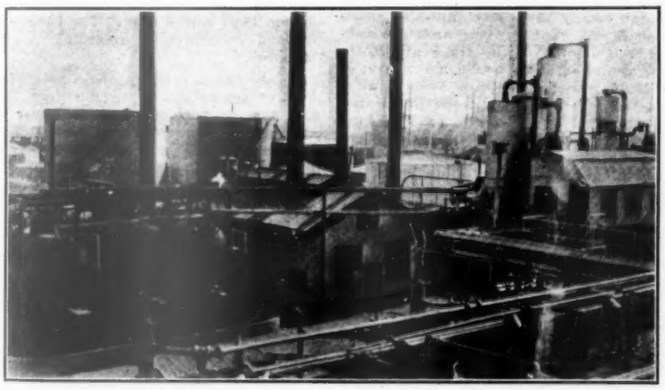


Fig. 1—General view of the Gilmore Oil Co. refinery, located at Vernon, Calif.

As is the usual practice among California plants, the company has departed from the use of the shell still for first run skimming work. The three shell stills mentioned are a part of the earlier construction of the plant, and at present are employed only for rerun purposes. The method of their employment will be described later.

Tubular Stills

Figure 2 shows the arrangement to the tubular distillation units. The still or retort to the right of the illustration has just recently been construced and installed. This still is of 3-inch pipe, consisting of 100 joints 20 feet long, and designed to handle 2,500 bbls. of crude daily, being similar in construction to the retort diagramed in the recent article in the December 31 issue of The Oil and Gas Journal, "Obtain Gasoline in One Operation." This baffle type of furnace is more or less extensively employed among refiners on the west coast. The retort is acetylene welded throughout and; despite the prophecies to the contrary, the welding has proved successful. It is the contention of the superintendent, W. C. Minger, who constructed this installation, that even in the event of a scorched or burnt tube deve'oping in the still, it is as simple a task to steam the coil, cut the damaged tube out with the torch and weld a new one in its place, as it is to unflange and rehead a bolted return bend when such equipment is employed. None of the welded retorts that the writer has inspected, however, has ever undergone repairs of this sort. As long as velocities and temperatures are carefully watched and maintained it seems that there is a distinct advantage in welding tube stills for nonpressure work.

The work of the tube still is lessened somewhat by the installation of a device for removing a portion of the vapors or gasoline from the crude prior to its entry into the pipe still. The cold oil is preheated in the Southwestern type tower control sections and interchanges shown in Figure 2 from where it flows into a small, well-insulated separator or evaporator, which is about 4 by 15 feet in dimensions, at a temperature around 300 degrees Fahrenheit. The oil enters at about 6 feet from the top of the separator, dropping to the bottom where the charging pump picks it up, removing it to the tube still. The vapors separated here are conducted through a 6-inch vapor line to the condenser and run-down, without any further fractionation. This installation is operating smoothly and without giving trouble.

The crude entering the pipe still is heated to about 500 degrees Fahrenheit conducted from the bottom row of tubes to a larger separator, 4 by 25 feet, where the residuum is dropped and pumped to storage. At this temperature, 500 degrees Fahrenheit, all the distillates desired are vaporized, which, upon leaving the separator, are conducted through the Southwestern type dephlegmator, which has the usual temperature control section at its top, and here the entire cut of gasoline is fractionated, separated and conducted through the condensers to run-down.

Disposal of Back Trap

The back trap condensate collecting in this tower, or dephlegmator, is conducted to the shell stills for rerunning batch while retaining the heat received during the first distillation, etc. This distillate upon redistillation, comes over at about 360 degrees Fahrenheit, yielding no gasoline sufficient to separate, the first over being around 41 degrees gravity and yielding a kerosene of about 350 degrees Fahrenheit initial boiling point and 145 degrees Fahrenheit flash. This points to the efficient fractionation of the towers and pipe still installation, which removes the entire yield of gasoline in one operation. There is no doubt but that the installation of the equipment for removing the light vapors from the crude after preheating in the exchangers, greatly influences, or assists, in getting more efficient fractionation after the oil leaves the pipe still. The volume of vapors and the amount of work to be done by the fractionating devices is thus greatly reduced.

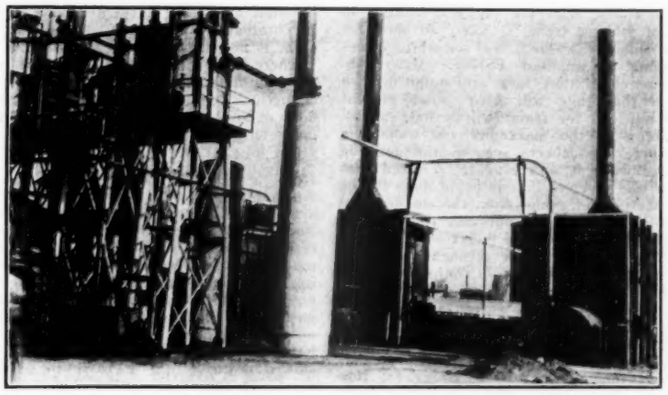


Fig. 2.—View of plant showing interchangers, vaporizers and tubular distillation units.

Other Stills

The second and third tubular stills mentioned operate in series, the first still and towers removing the gasoline, and the second retort distilling the lower cuts, the vapors being handled in a manner similar to that described above. These stills are smaller and handle only about 1,500 bbls. of crude daily. This equipment is also part of the earlier installation, and with the installation of the new 3-inch tube still the company has more than doubled its capacity, and the equipment installed to accomplish this occupies not a third as much space as the older types of installation which handled at best about 2,000 bbl. of crude.

The plant is operating at present on crude derived from the Dominguez Field and other southern California fields. Skimming plant operations result usually in a plant breakup, when skimming Dominguez crude having the average gravity of 28 degrees A.P.I., about as follows:

	Per Cent
Gasoline	27
Kerosene	8 to 9
Gas oil, two grades	6 to 7
Fuel oil, around	52 to 51

Manner of Treatment

Gasolines from the greater portion of the many varieties of southern California crude are usually distilled direct from the crude meeting specifications as to the doctor test, (sodium plumbite and free sulphur), but they also, as a rule, have a decided tendency to turn speedily various shades of pink and yellow upon exposure to sunlight. This, then, constitutes the usual treating problem with the skimming plant operator. The problem and its solution seemingly varies with each plant, or each type of crude, depending upon its source. Often the problem is solved by the employment of acid for the removal of certain constituents of anti-knock value occurring naturally in California petroleums, the acid treatment is at least, inadvisable. The technical experts and scientific investigators within and outside of the industry have found that California crudes are derivatives of hydrocarbons of the naphthene and aromatic series, and late investigations have proved conclusively that the members of these series are of great importance in giving to gasoline that quality of nondetonation which is so sougth for by the gasoline producing industry.

The Gilmore company has been successful in experimentation with the treating problems to the end that the use of acid and caustic has been entirely abandoned, and thus the cyclic hydrocarbons and others present in their gasoline are reacted upon to no material extent in the chemical refining process.

The solution of this problem was effected by experimentation employing various grades, types and brands of California clay. Usually when one speaks of clay and its clarifying and stabilizing effect upon gasoline, the entire category of clays (and they are numerous) are grouped together as just "clay." There are, however, many clays, sources of clays, and methods of preparation, for the various industries requiring them. The Gilmore company was successful in discarding their acid procedure by merely experimenting with various samples

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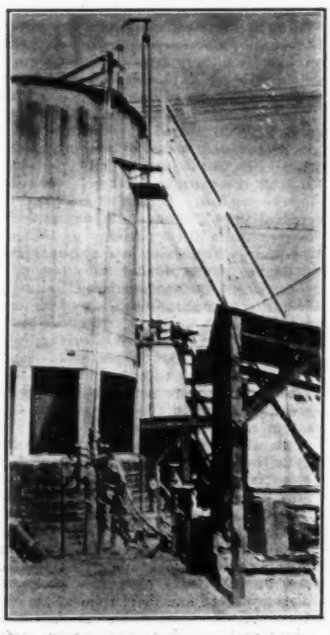


Fig. 3—Agitator assembly and filter for removing clay.

KEROSENE STRONG IN CHICAGO; GASOLINE DEMAND SLOWING UP

By J. B. Waldo

CHICAGO, Jan. 16.—Kerosene has been carrying the flag and leading the procession during the past week. It has shown decided strength which is more than can be fairly said of any other major petroleum product in the Chicago market. Gasoline has not sagged but it has lagged badly. The spot demand has been light and judging from reports made from different territories by salesmen who are out on their first trips for the year calling on the jobbing trade, is likely to slow for a couple of weeks unless something comes along to stimulate buying. Many jobbers claim that they are supplied with all that they will need under present conditions for from two to four weeks. Many of the marketers are wondering where the jobbers secured the gasoline and when it was bought. A large part of the business that is being done in the spot market comes from the smaller jobbers who are still pursuing the hand to mouth policy but the larger ones have secured supplies either through quiet purchases or on contracts. There were some very favorable contracts expiring at the close of 1925 and where they could do so, the holders of these contracts have taken in all they could at the old prices.

Some of the largest organizations claim that their distribution is large for this time of the year. Many state that their business is fair considering the season and conditions of the country roads.

Here in Chicago distributors admit that their gasoline business is light, one of the largest stating that the bulk of his sales was to trucks and public conveyances and that the consumption of gasoline by pleasure cars was very small. There are many owners of cars who store their cars for the winter.

Market Shows Strength

Under these conditions the fact that the market has held its own at 10 cents for U. S. Motors gasoline shows really a considerable degree of strength especially since there has been no advance in either tank wagon or crude prices. Many of the advices received from marketers here from their agents in the field state that there is much paying of premiums, an active scramble for crude and that an advance in the Mid-Continent oil is expected any day—but they have been writing the same sorts for 60 days and more, so the local marketers are less influenced by these reports. However, there is one significant fact—there is very little desire to sell evidenced by refiners. They do not seem anxious to advance prices at least in a general way and several have expressed themselves that an early advance would only tend to force the jobbers to increase the purchases now at the expense of their orders later in the season. If the prices were increased now it might mean a decline later while a little patience at the present time will result in a steady market at higher prices during the time of the year when the consumption is at its height. According to all reports made to this city, stocks of gasoline in the field are light and active buying would not only enable the refiner to ask higher prices but force them to increase their runs and if the present buying were followed by a period of slack demand stocks would accumulate. The refiners may not think all this but simply are unwilling to sell ahead until the question of crude costs is settled for the season. At any rate there has been some frequent mentions here of the apparent indifference of refiners to more business.

According to some reports there has been a selling of gasoline in Ohio from the Pacific Coast at prices under the present Mid-Continent refinery market. More direct competition is had from Shreveport and New Orleans in certain Ohio districts where the freight differentials enable refiners to take the business at less than Mid-Continent costs laid down and yet get in some cases a higher price than the Mid-Continent refinery. Cincinnati is one of the cheapest gasoline markets today owing to the freight rates from Shreveport and New Orleans.

There has been so little spot demand that sellers are unable to say whether the demand for any gravity is increasing or not. The Standard Oil Co. of Indiana has begun to feature its "Solite Brand" in its daily space in the newspapers and this is believed will make the higher tests more salable in this city but the demand is so different that no expression of special favor for any grade is obtainable expect that the 450 end point is not wanted at all.

There is little doing here in the natural gasoline and prices are practically unchanged. The motor blends are so seldom named by buyers that few of the marketers even recognize them by name, grade or gravity.

Kerosene Is Strong

Kerosene is very strong and fairly active but the great strength came from the limited supply rather than the excessive demand. Jobbers have been buying with some freedom but there is nothing in the present business to indicate anything more than a filling of the tanks hastened a little in some cases by the advances in price. There is a tendency here to expect that the demand will be slowed down by the increase in quotations. In some few smaller places where the furnace oil business is light, kerosene has been supplied to the few buyers rather than add additional storage and put in a stock of distillates but this will not account for many extra cars sold. The export buying has undoubtedly played an important part in reducing stocks and the cracking process in decreasing the output. If there have been any sales of 41-43 gravity at 6 cents they have not been reported. There have been sales at 5⅞ cents but the bulk of the business is going at 5¾ cents and on the present refinery costs and prices in other markets this seems to be the top right now and some believe that it is the top for the season.

Furnace Oils Inactive

Furnace oils have not been active. The cold weather has not lasted long enough to do more than temporarily increase the consumption and there has been no rush of business. Supplies of all grades are more than ample and sufficient supplies have accumulated on the tracks to keep the market at least not more than steady while some refiners have shown a desire to reduce their stocks and have offered more freely although so far they have held for their full price. The stocks carried for strictly furnace oil consumption are narrowing into two grades and many jobbers are now carrying a grade in the "lower thirties and a grade in the upper thirties" to quote one distributor and find that they can supply the needs of all classes of burners with these two grades if the flash and other essentials are right. In other words the average jobber is stocking a zero cold test gas oil and a distillate with a gravity of 38-40 and a flash of around 160 to 170 degrees. Some jobbers last season had five original grades of furnace oil and blended several more. They are gradually learning better. One refiner said to the writer that he tried to talk to some of the burner men and indicate to them the kind of oil of which there should be an assured supply, a process distillate, but they would not listen to him and apparently cared nothing for what he had today. In his opinion that is the kind of oil that will be available for the domestic oil burner in sufficient quantities and that is the only one on which they can build their industry with an assurance of continued supply.

Naphthas Active

Naphthas of the gravity used in the paint and varnish trades and in some other industries to a lesser extent, have been inquired for actively and from entirely new sources. Some oil companies have sent in letters inquiring for V. M. & P. and other grades that indicate these to be a new product to them. The reason is very evidently the rapid advances made in the price of turpentine and the decreasing supply of the latter. Stocks of turpentine were light at the beginning of the producing season and have not been increased as the export demand has been large. Since January, prices to the trade in Chicago have been advanced 15 cents per gallon and the average quotation here for turpentine in less than car lots in wooden barrels is $1.15 per gallon. Tank cars are now only quoted direct by the main offices at Savannah. Present prices on naphthas as quoted by the Standard Oil Co. of Indiana, a leading source of supply for these products, are tank wagon, O'eum spirits, 18 cents; V. M. & P. naphtha, 20 cents and the highest grade, Cleaners' naphtha, 20 cents, the same price as the former. Tank car prices f.o.b. Whiting are Oleum Spirits, 13½ cents; V. M. & P. naphtha, 14½ cents; Cleaners' Naphtha, 15½ cents. The Chicago industrial consumers generally make six months or yearly contracts and some contracts have been made on the basis of 14 cents delivered over the period with a clause protecting the buyers against declines in the price.

Gas Oil Easier

Gas oil in common with other fuel oils has eased off a little and dealers state that they can now buy refinery oil at 3½ cents in several cases and that oil on the tracks can be bought at this price from distributors here. The continued mild weather has seriously curtailed the sale of gas oils by the distributors of furnace oils. It seems quite evident that there has been an exaggerated estimate made of the probable consumption of furnace oils and that many distributors have overestimated the demand. Apparently some of them prepared for an increase in business of as high as 75 per cent over last year and so far locally they have failed to reach their figure. Early in the week the market was quoted to the trade at 3¾ to 3⅞ cents with an occasional figure of 4 cents, the higher price being always for the zero test oil but the top of the market right now seems to be 3¾ cents.

Fuel oils have eased off a little. There are considerable local accumulations of fuel oil and local distributors have sold in some cases at what are practically distress prices. All through the season at times some refiner has sold limited quantities for prompt shipments at slightly less than the market but in such cases as soon as the desired quantity was sold the refiner went back to the full price but right now there are quite a number of these offerings in the market and the quantities are larger. Fuel oil of the 18-22 gravity has been offered quite freely at $1.20 and 24-26 at $1.25. They have been several lots of rejected oil on the market and in some instances the oil has been finally sold at prices which permitted the buyer to deliver the fuel on a lower grade than it was supposed to test. One shipment of 18-22 was sold at a price that permitted the buyer to apply it on a contract which called for a 16 gravity oil. The feeling is that unless there is an immediate and continued cold spell to increase the volume of the oil consumed for heating purposes, the market is past its peak.

The Smackover market has stiffened and most of the quotations made are now $1.05 per barrel. Some large deals are reported to have been closed. One seller stated that he had sold the Rock Island Railroad a very considerable quantity and that this would take the place of an equal quantity of refinery oil from the refiners along its line but the road in question has been using a large amount of Smackover oil for fuel so that the loss of business to refiners may not be important at that.

Industrial Demand Small

The contract with the Santa Fe Railroad has been up for renewal but at this writing it is apparently still shopping round for the best terms. The industrial demand is fairly large and steady but is supplied for the most part through contracts and several of the steel companies have been noticeably out of the market for some months.

One of the large local steel companies has in former seasons been an important buyer in this marke for amounts in addition to the contracts which it held but this season it has bought almost nothing. The purchasing agent says that it is not using as much oil. There is very little new business coming here from Ohio and western Pennsylvania but some refiners have good contracts in that territory. Locally there is considerable talk of the practice of some refiners quoting the consumers direct at the same price that they sell to the market. Then they want the marketer to take any surplus pay the same or higher prices than the refiners have sold the consumers and, of course, the marketers simply cannot do that. At times this method of selling makes a lot of trouble for the refiner because of his lack of intimate knowledge of the methods of his customers, their wishes and necessities. Most of the recent rejections of fuel oil have been because of this lack of complete knowledge of just what the customer must have in the way of fuel oils and what he could not use at any price. This week a lot of oil was turned back because it contained 2½ per cent sulphur when the specifications called for 1½ per cent of that content. The refiner thought that they buyer was fanciful, to put it mildly, and that the oil was being returned on technical grounds. Local oil men knew that this was the one item in the specifications upon which that buyer could not be induced to vary.

Lub Oils Steady

Lubricating oils are moving steadily on contracts and while the immediate consumption of motor oils is decreased seasonably, the future business is good and contrary to some reports prices are firmly held by refiners although there is some local cutting of prices to consumers due to local competition. The industrial demand is improving according to distributors.

Tank wagon markets show no change here or generally over the territory. The gallonage is variously reported some of the organizations reporting a very good business seasonably considered. This is probably a correct statement. The jobber who in response to an inquiry says that business is nothing like what it has been in comparing the most quiet month of the year with his gallonage during the peak months of last summer. The tendency in the oil industry seems to be always to expect unreasonable increases in business and then to grumble because he has not done even better than anticipated. The local situation continues unchanged. So far the apparent unanimous desire of all local distributors to do away with the 1-cent discount on dumps of 100 gallons of gasoline or over has not been realized. There are so many contending interests and to some of them the local business is so comparatively unimportant that they can be arbitrary and this does not refer to the Standard Oil Co. of Indiana which, as the writer sees the local situation, has been more than willing to meet any fair proposition from the other distributors. Of course the smaller companies with a local territory only for their business have what they consider a real grievance in the cumulative discount system of the larger integrated companies but this is a matter that will have to be met by business methods rather than complaints of unfair tactics. The small jobbers who have cut the prices right and left when they had the opportunity are the first to complain of the methods of the larger concerns.

BLAFFER CASE POSTPONED

AUSTIN, Tex., Jan. 16.—Counsel have agreed to try the Blaffer-Humble Field case beginning on March 22, if that is agreeable to the court. It was set for January 18, but the death of Adolph Goldman forced a continuance.

EASTERN UNDERTONE REMAINS FIRM; FUEL OIL STRENGTH MARKET FEATURE

By N. O. Fanning

NEW YORK, Jan. 16. — The eastern refined oil markets were unchanged during the past week, the undertone remaining firm. No important changes in prices can be recorded. Tank car gasoline was quoted at 12½ to 13 cents for U. S. Motor from Mid-Continent. Spot gasoline was difficult to obtain at local refineries, with quotations running around 13 cents.

The weather was unfavorable for consumption during the past week, and the refineries have now definitely set about laying up stocks. This is being done partly by increasing refinery runs. It is realized that the time is short for preparing for the coming spring demand for gasoline and other petroleum products.

The oil marketers in the eastern territory seem to be awaiting the trend of crude petroleum, as the next important factor affecting their price schedules. An advance had been expected before this, but continued failure of this to occur has set them guessing, with crude oil production apparently on a definite downward trend.

Unfavorable weather may postpone any increase in crude oil prices for a while, but the trade here believes that so long as present conditions continue the quotations are bound to advance sooner or later. It is understood California receipts are getting smaller, with some difficulty in obtaining gasoline for shipment east. The supply of fuel oil is ample, especially from California and Mexico, but Smackover stocks are said to be declining rapidly, due to heavy shipments to the Atlantic Seaboard.

The strength in the fuel oil market, which is the feature of the oil situation on the Atlantic Seaboard as well as on the Gulf Coast, is believed to be the augury of improvement all around in the petroleum trade.

Gas and Fuel Oil

Kerosene market continues without special feature. Consumption is somewhat better and prices are holding steady.

Fuel oil is getting somewhat hard to get, and indications are prices may be advanced further along the Atlantic Coast in the near future, although it may be only 5 or 10 cents a barrel.

Lubricating Oil

The lubricating oil market continues firm, with smaller demand but current supplies in strong hands. No price changes were recorded, although concessions were reported as being made in some directions in bright stock and cylinder oils. Red and pale oils and neutrals were firm.

Paraffin wax was somewhat weak, due to the influence of the export market.

Petrolatums are holding better with prices steady but unchanged.

Export Market

Reports from Europe indicate that buyers of oil products there are holding off from purchasing in the United States in the belief that prices here will weaken again. In other words, they have not been induced to come into the market by the recent strength in gasoline prices.

The movement of oil products from New York as reported during the past week consisted largely of case lots of gasoline, kerosene and lubricating oil destined for Africa, the Far East and South America. No bulk shipments were recorded.

Exports of gasoline in cases amounted to 2,820,880 gallons, compared with only 821,760 gallons the preceding week. Cased shipments of kerosene for the week ended January 13 were 3,910,480 gallons, against only 234,830 gallons the week before.

Shipments of lubricating oil in cases amounted to approximately 200,000 gallons, compared with none the preceding week.

Exports of paraffin wax during the week amounted to 1,218,000 pounds of refined, a substantial gain over shipments of the preceding week.

The following table shows principal exports of petroleum and petroleum products from New York during the last three weeks (figures in gallons unless otherwise noted in parentheses):

	Week Ended		
Gasoline:	Jan. 13	Jan. 6	Dec. 30
Bulk	.....	3,290,146	.....
Barrels	282,088	.....	.....
Cases	2,820,880	821,760	721,333
Kerosene:			
Bulk	.....	1,583,356	.....
Barrels	65,000	.....	.....
Cases	3,910,480	234,830	464,440
Turpentine substitute:			
Cases	26,130	.....	76,500
Lubricating oil:			
Bulk	.....	1,790,412	.....
Barrels	594,550	1,146,340	996,050
Cases	199,244	.....	19,930
Lubricating grease:			
Barrels (lbs.)	.....	292,500	141,660
Paraffin wax:			
Bags (lbs.)	1,218,800	964,480	1,923,020
Petroleum asphalt:			
Barrels (lbs.)	.....	.....	1,298,000
Petroleum coke:			
Bags (lbs.)	.....	.....	2,167,000

The above figures include exports in lots of 500 bbls., 1,000 cases, or more.

Tanker Charters

The tanker chartering market has at last showed some post-holiday activity, with renewed interest in coastwise fixtures. New fixtures reported recently include:

The tanker Silverbrook (Am.), Gulf Coast to Continent, fuel oil, late January loading.

Tanker Derbyline, California to north of Hatteras, crude oil, 70½ cents a barrel, two trips, options, February loading.

Tanker Baldhill, February loading, light crude oil, Gulf to north of Hatteras, at 26 cents a barrel.

Tanker Hoven, January loading, light crude oil, U. S. Gulf to Providence, at 26 cents a barrel.

Oil Receipts Decline

Estimated receipts of crude and refined oil by water at Atlantic Coast ports during the week ended January 13 were 493,000 bbls. daily, against 538,000 bbls. the week before. The feature was an increase in daily average receipts from the Gulf Coast to 346,000 bbls., against 314,000 bbls. the week ended January 6 and 258,000 bbls. the week ended December 30. During December receipts from the Gulf averaged 298,000 bbls.

California receipts fell to 50,000 bbls. daily and imports amounted to only 97,000 bbls. daily.

The following table shows estimated daily receipts of crude and refined oil by water at Atlantic Coast ports from the Gulf and Pacific Coasts of the United States, and imports, for the last three weeks; also monthly record for the last 12 months (figures in barrels):

	Week Ended		
	Jan. 13	Jan. 6	Dec. 30
Gulf Coast	346,000	314,000	258,000
Pacific Coast	50,000	95,000	47,000
Imports	97,000	129,000	80,000
Total	493,000	538,000	385,000

Daily Averages by Months

1925—	Gulf	Pacific	Imports	Total
December	298,000	53,000	105,000	456,000
November	259,000	36,000	92,000	387,000
October	249,000	36,000	102,000	387,000
September	306,000	66,000	76,000	448,000
August	291,000	54,000	90,000	435,000
July	391,000	63,000	107,000	561,000
June	379,000	66,000	118,000	563,000
May	312,000	81,000	145,000	538,000
April	353,000	78,000	101,000	532,000
March	273,000	82,000	135,000	490,000
February	262,000	51,000	147,000	460,000
January	311,000	77,000	133,000	521,000

The foregoing estimates are based upon the carrying capacity of incoming oil-laden tankers.

GASOLINE RECOVERED IN ONE OPERATION

(Continued from Page 125)

of numerous clays, until they found the one which performed according to their requirements, assuring a clear .30 plus color, stable in sunlight. Figure 3 illustrates the agitator assembly, one of the three agitators on the plant yards, for treating with clay. The clay is carried to the agitator top, dumped into the gasoline and blown with it for 20 to 30 minutes. It is then settled for a like period and the gasoline is ready for the market. The small drum-shaped filter at the right of the illustration is used in pumping the bottoms off of the agitator and thus that portion of the gasoline in the cone containing the settled and spent clay is not lost. This procedure has been found to be less costly than acid treatment, in addition to the advantages enumerated above.

Road Oil Plant

The Gilmore Oil Co. has holdings in the heavy oil fields of Santa Maria and southern California from which is derived excellent road oil of high asphalt content. The oil is first reduced to the proper consistency by distilling off a small percentage of light distillate, ranging from 5 to 10 per cent of the heavy crude. The preparation of high quality road oil, though involving only the topping of the light oils, does, however, include other considerations than merely utilizing refinery residuums. The various asphaltic road oils are prepared to meet certain standardized specifications, especially as to penetration. The road oil plant handles asphaltic crude, reducing it to either 70 or 90 per cent asphalt at 80 penetration. The road oil plant prepares the oil for market, heating it in tubular retorts to a temperature of about 450 degrees Fahrenheit. The large, elevated and well insulated loading tanks receive the hot oil from the retorts and hold it at the temperature mentioned until loaded in the large trucks used for spreading this oil on the roads. This heating plant, or road oil plant, is one of the few of its type, constructed for the purpose of road oil preparation alone, and is therefore of interest. The Gilmore company has pioneered in the preparation and marketing of road oils in a country where the asphalt oiled road is very popular.

CALIFORNIA MARKET OUTLOOK IS BRIGHTER

LOS ANGELES, Calif., Jan. 16.—The outlook for the oil industry on the Pacific Coast is brighter than for months. The one factor most responsible is the steady decline of crude oil production in California. This, coupled with the decided increase in consumption of practically all petroleum products, has placed the market in a stronger position than since summer. Many marketers are very optimistic and predict an increase in the price of both gasoline and crude throughout the Pacific Coast within 60 days, based on the assumption that no new gusher field will be brought in, as a new field at this time would again lead to overproduction which would seriously affect marketing conditions.

During 1925 over 104,500,000 bbls. of petroleum products were shipped out of Los Angeles Harbor. This is an increase of approximately 3 per cent over shipments during 1924. The general opinion among marketers is that 1926 will in turn surpass 1925 in total petroleum products shipped. The present price schedule makes it possible for California crude and refined oils to compete favorably in both Eastern and Gulf Coast markets. Large shipments have already moved out this year. Refined products are being shipped to foreign ports in large volume and these shipments are also expected to increase in the next few months.

Gasoline continues to move satisfactorily in the domestic trade around Los Angeles due to favorable weather for automobile travel. Competitive conditions remain unchanged, which means there is plenty of gasoline being offered at cut rate prices. In spite of the many service stations already in and around Los Angeles and the stiff fight each is making to get its share, new stations are still being built.

Lubricating oils are moving in fair volume along with gasoline. Prices continue unsteady as a result of price cutting started some weeks ago by one of the larger marketing companies.

The demand for kerosene has shown considerable improvement the past month or so. No immediate strengthening in price is looked for, however. Fuel distillates and fuel oils are moving in good volume. Stocks of these oils, though, continue to mount.

Contracts for 1926

Many contracts are being renewed by refiners and exporters for 1926. The demand is excellent for practically all products and many new agreements are being closed.

One of the most active companies in the wholesaling of gasoline and fuel oil is the General Petroleum Corp., which operates a large distributing system on the Pacific Coast and maintains its own large fleet of tankers. This company, according to one of the officers, is well fortified for 1926 with several new gasoline and fuel oil contracts, in addition to the renewal of old ones.

One of its most important gasoline contracts calls for the shipment of a minimum of eight cargoes yearly to England. Each cargo amounts to 103,000 bbls., the capacity of each of the two tankers used by General Petroleum on this contract. The gasoline carried by one of these tankers is equivalent to the gasoline consumption for the entire State of California for two days.

Another large gasoline contract that has been bringing revenue to General Petroleum for some time calls for the shipment of 75,000 bbls. monthly to a company at Baltimore. This amounts to 900,000 bbls. annually, and has been renewed for 1926.

General Petroleum also is working on a two months' contract for 3,000,000 bbls. for the Shell Oil Co. The first shipment was lifted in December and the second will be made this month. Other local contracts provide for the delivery of 1,000 bbls. daily to one of the independent marketing companies and 500,000 gallons monthly to another.

Fuel Oil Movement

In the fuel oil division, General Petroleum has signed a new contract for the delivery in 1926 of 1,000,000 bbls. of fuel oil to the Asiatic Petroleum Corp. and for eight cargoes to the Atlantic Refining Co. The backbone, however, of the company's fuel oil business is the contracts with the Santa Fe and the Great Northern railroads.

Both of these contracts have been operative for some time. The Santa Fe agreement provides for the delivery of 400,000 bbls. monthly, while Great Northern takes 70,000 bbls. monthly.

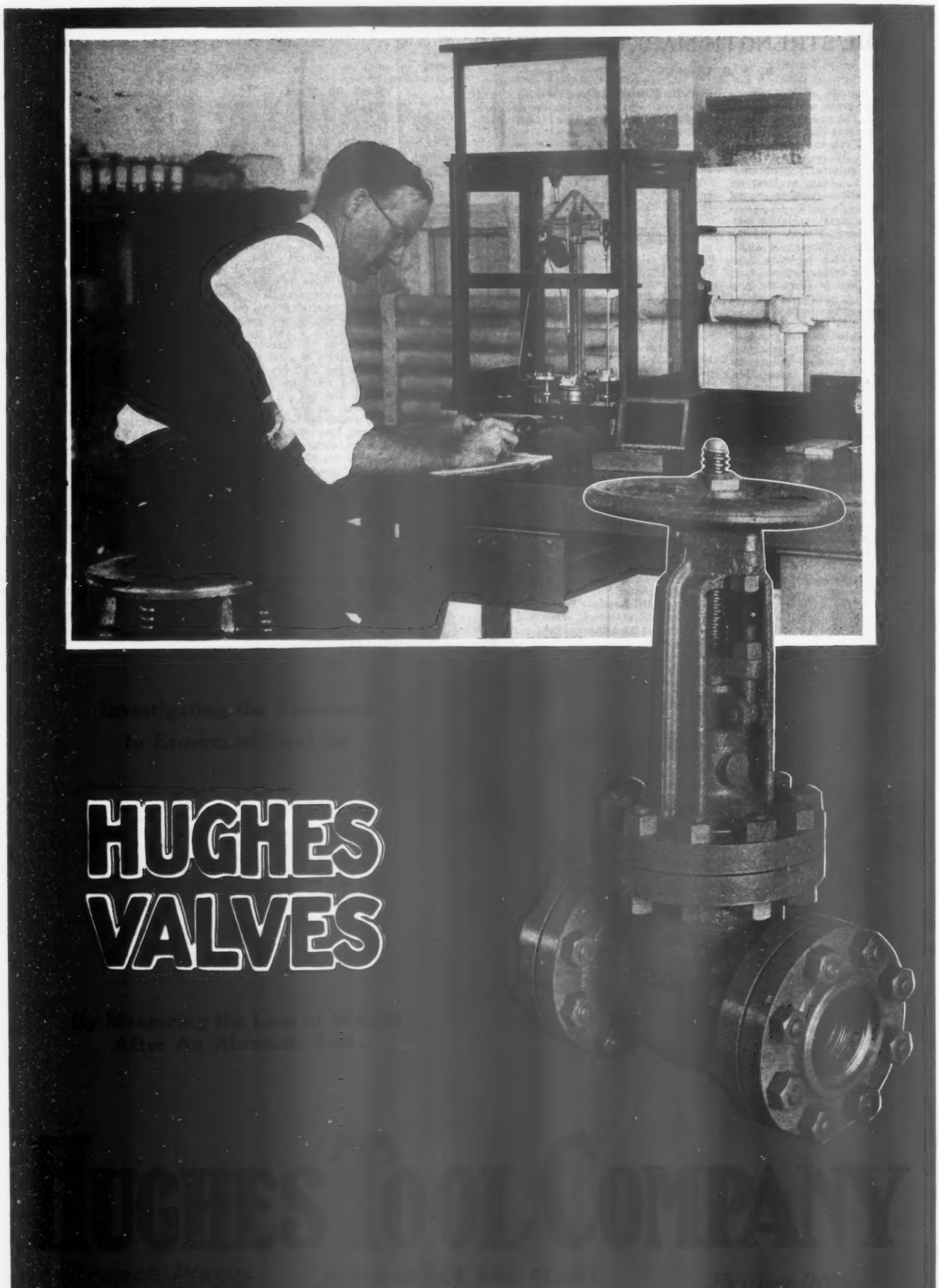
In the Orient, the company is doing an increasing business through its representatives, Mitsui & Co. Through this source, something like 75,000 bbls. of fuel oil are marketed each month. Two cargoes also have been sold to the Anglo-American Oil Co. for 1926 delivery. In addition the Standard Oil Co. of California purchases 50,000 bbls. of distillate monthly.

General Petroleum

In its own territory on the Pacific Coast, General Petroleum operations are entirely confined to the wholesaling of refining products. The policy of the company is to remain out of the retail distribution, and to sell directly to the independent service stations. The distributing system has extended from the Pacific Northwest down the coast to a point near Ventura, and inland, to the territory immediately south of Fresno. Plans are being formulated for entry into Southern California some time in the spring months.

From the stock market angle, it is asserted by an officer of the company here that nothing is contemplated at this time in the way of a merger or combination. The activity of a stock market pool in New York has given rise to the story that control is now held in the east by the Harry Payne Whitney and Colgate interests, who are in a position to effect a deal of some kind. In denying this story, it is pointed out here that the stock is widely distributed, and no one holding is sufficient to actually control the company.

In fact, the employes now hold one of the largest blocks of stock, although even this holding is only a small percentage of the outstanding capitalization. The company has several employe stock plans and in the last few days has delivered $75,000 par value of common stock to about 200 employes, who have paid their subscriptions in full. Under an extra compensation plan, these employes received $6,000 in cash, which reduced the cost of the stock to $69,000.


HUGHES
VALVES

Brief Items for Plant Operators

PACIFIC COMPLETES ITS CHARCOAL PLANT

LOS ANGELES, Calif., Jan. 16.—Construction work is completed on the Pacific Gasoline Co.'s charcoal absorption plant on the Associated Oil Co.'s Lloyd lease in the Ventura Avenue Field. This plant is not far distant from the company's two oil absorption plants in that field. Gas, after having passed through the oil plants is treated a second time in the charcoal plant where it is more thoroughly stripped of its gasoline content. Operation of the plant has been simplified by the use of nine huge 14-inch hydraulic gate valves which regulate the flow of gas to the three horizontal charcoal absorber stills. The use of these stills might be termed a "batch" process since the passing of gas through the absorber still, the distillation of gasoline from the charcoal and the cooling of the charcoal are carried on successively in each still every three hours. The plant has a capacity of 6,000 gallons daily and is designed particularly for the purpose of treating gas of low gasoline content. It is the first of its kind to be used by Pacific Gasoline Co. and is one of several similar installations in southern California. Results obtained during its first week of operations proved exceedingly satisfactory.

New development in the Brea Field has called for an enlargement of facilities of the Pacific Gasoline Co. in that district. Work has begun on the installation of a gasoline plant which will have a daily output of 2,500 gallons when completed. This plant is being built near the site of the first plant constructed by the company which was placed in operation in 1911. The new plant is expected to be in operation about February 1.

CARBON BLACK PLANTS

AUSTIN, Tex., Jan. 18.—Application of Phillips Petroleum Co. for a permit to establish a carbon black plant in Hutchinson County to burn from 30,000,000 to 50,000,000 feet of residue gas from casinghead gasoline plants in Carson and Hutchinson Counties, was submitted before the Railroad Commission and taken under advisement. No protests were made. Policy of the Railroad Commission has been to authorize carbon black plants to use residue gas which would otherwise be wasted.

TO ENLARGE CASPER PLANT

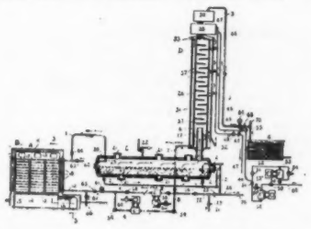
A. S. Bailey, assistant superintendent of the Port Arthur refinery of The Texas Co. has been appointed superintendent of the Casper, Wyo., plant of the company. The company has an extensive expansion plan for the Casper plant. Leo F. J. Wilking has been transferred from Casper to the superintendency of the company's asphalt plant at Port Neches, Tex.

NEW UNITS FOR UNION OIL

The Union Oil Co. of California has contracted for the installation of four 2,000-bbl. Cross cracking units at its Wilmington, Calif., refinery. The company has been operating a 1,000-bbl. unit for the past year and a half. When the new units are completed the Union will have the largest cracking installation in California.

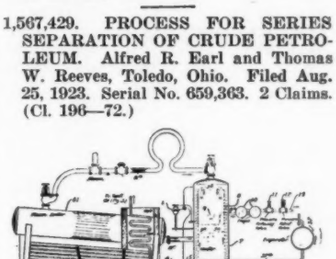
Recent Patents

1,567,062. PROCESS OF AND APPARATUS FOR CRACKING HYDROCARBONS. Frederick B. Koontz, Tulsa, Okla., assignor to Cosden & Co., Tulsa, Okla., a Corporation of Oklahoma. Filed May 8, 1924. Serial No. 711,866. 30 Claims. (Cl. 196—48.)



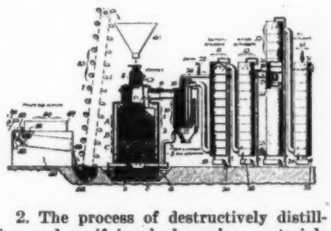
6. In the art of cracking hydrocarbons, the process which comprises conducting a stream of hydrocarbons through a cracking zone where a cracking temperature is maintained, discharging the resultant highly heated stream into a separating chamber and depositing the carbonaceous residue in said chamber, maintaining the contents of said separating chamber at a temperature high enough to cause free evaporation of relatively low boiling point liquid in the carbonaceous residue, removing the carbonaceous residue as it accumulates in said separating chamber and discharging it from the system, discharging the vapors from said separating chamber in an upward direction and at a velocity low enough to permit free precipitation of carbonaceous material in the rising vapors, at the same time dropping carbonaceous material from the rising stream of vapors to said separating chamber, then subjecting the relatively clean vapors to a reflux condensing action to obtain clean reflux condensate freed from said carbonaceous material, at the same time heating fresh charging stock and removing low boiling point vapors therefrom, controlling the reflux condensing action to condense more than 70 per cent of the vapors, separately condensing the remaining vapors, controlling the admission of charging stock in accordance with the reflux condensing action to provide a supply of charging stock and reflux condensate in proportions of less than 25 per cent charging stock and more than 75 per cent reflux condensate, mixing the liquid portion of the charging stock with the hot reflux condensate pumping the hot mixture through said cracking zone and into said separating chamber, and regulating the pump to maintain a substantially uniform cracking conditions in said cracking zone.

1,567,429. PROCESS FOR SERIES SEPARATION OF CRUDE PETROLEUM. Alfred R. Earl and Thomas W. Reeves, Toledo, Ohio. Filed Aug. 25, 1923. Serial No. 659,363. 2 Claims. (Cl. 196—72.)



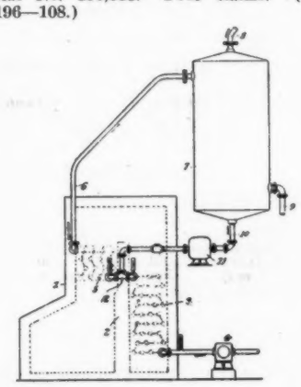
1. The method of continuously distilling mineral oil which consists in heating the oil under pressure by means of steam, then releasing the pressure of the so-heated oil and passing the same into an expansion zone, where part of the oil vaporizes, conducting away the vapors so formed and fractionally condensing the same, withdrawing the unvaporized oil and further heating the same while not permitting vaporization of the oil, passing the said heated oil into an expansion zone maintained at a pressure below atmospheric and there permitting vaporization of the lighter products to take place, withdrawing and condensing the vapors so formed, withdrawing the unvaporized oil from said expansion zone and heating it by direct contact with superheated steam while maintaining the same under sufficient pressure to prevent vaporizing of the oil, releasing the pressure of said oil and passing the heated oil into an expansion zone maintained at a pressure below atmospheric, thus permitting part of the oil to vaporize, withdrawing the vapors so formed and fractionally condensing the same, and withdrawing the unvaporized oil from said last named expansion zone.

1,568,018. TREATMENT OF HYDROCARBONS. Charles N. Forrest, Rahway, and Harold P. Hayden, Perth Amboy, N. J., assignors to The Barber Asphalt Co., Philadelphia, Pa., a Corporation of West Virginia. Filed June 15, 1920. Serial No. 389,086. 4 Claims. (Cl. 196—55.)



2. The process of destructively distilling and gasifying hydrocarbon materials which consists in charging therewith pieces of divided inert refractory material as a carrier; passing the resultant porous charged aggregate progressively through the sphere of reaction; and subjecting the aggregate, towards its exit therefrom, to a limited counterflow of combustion agent, so as to create in the sphere of reaction a region of combustion and a preceding region of cracking, thus eventually consuming the coke formed from the cracking and restoring the carrier material to clean, uncharged condition.

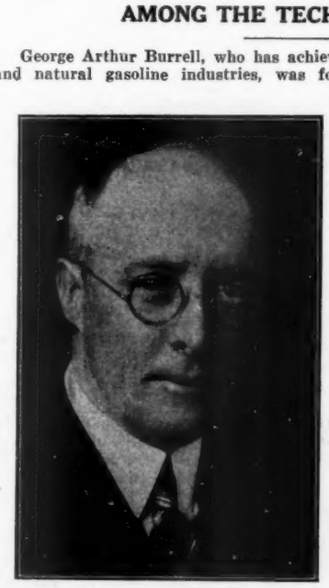
1,566,921. Oil Still. John Primrose, Specialty Co., New York, a corporation of New York. Filed June 19, 1920. Serial No. 390,088. Four claims. (Cl. 196—108.)



1. The combination with an oil still having banks or groups of tubes exposed to hot gases in different parts of their course, of means for taking off, returning to and causing to reflow through the bank or group of hottest tubes only, oil that has already passed through the still, for the purpose set forth.

AMONG THE TECHNICAL MEN

George Arthur Burrell, who has achieved distinction in the natural gas and natural gasoline industries, was for several years connected with government work. Following his graduation in chemical engineering from Ohio State University at Columbus, Ohio, Mr. Burrell entered the service of the United States Geological Survey in 1904. Until 1908 he was engaged in fuel investigation work.



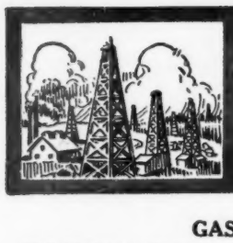
G. A. Burrell

From 1908 to 1915 he was in charge of the department's work in gas and gasoline. During this government service he issued 50 bulletins on oil, gas and gasoline based on his investigations. During 1915 and 1916 he was engaged in consulting work at Pittsburgh, Pa.

In 1917 he was made assistant to the director of the Bureau of Mines with headquarters at Washington, D. C. Later and during the war he had charge of the research division of the Chemical Warfare Service. He held the rank of Colonel during this service, a title with which he is familiarly known at the present time. He received the Distinguished service Medal for his war service.

Following the war he was connected as an executive with several oil and gas companies including the presidency of the Island Refining Co. and the vice presidency of the Raritan Refining Co. He also did special research and construction work for the Ohio Fuel Supply Co. and the Manufacturers Light & Heat Co. of Pittsburgh.

Colonel Burrell's most important contribution to the natural gasoline industry was the charcoal absorption process of which he and G. G. Oberfell are the inventors. He is the inventor of other equipment used in gas and natural gasoline industries. One of his books, "The Recovery of Gasoline from Natural Gas," is widely consulted by plant operators. His home at the present time is in New York City.



REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	Jan. 19		Jan. 12		Jan. 5	
OKLAHOMA (Group 3)—						
50-52 450 end point	.08⅞	.09	.09	.09¼	.09	.09¼
56-58 450 end point	.09¼	.09½	.09½	.09⅝	.09½	.09⅝
58-60 437 end point (U. S. Motor)	.09¾	.09⅞	.10		.10	
60-62 400 end point	.11⅛	.11⅜	.11⅜	.11½	.11¼	.11½
64-66 375 end point	.12¼	.12⅜	.12¼	.12½	.12¼	.12½
68-70 350 end point	.13	.13¼	.13¼	.13½	.13¼	.13½
KANSAS—						
58-60 437 end point (U. S. Motor)	.10	.10¼	.10¼	.10½	.10¼	.10½
NORTH TEXAS—						
48-52 450 end point (Naphtha)	.08¾	.08⅞	.09		.09	
50-52 440 end point (Naphtha)	.08¾	.09	.09	.08¼	.09	.09¼
56-58 450 end point	.09¼	.09⅜	.09½		.09½	
58-60 437 end point (U. S. Motor)	.09⅝	.09⅞	.09⅞	.10	.09⅞	.10
60-62 400 end point	.11⅜	.11½	.11½	.11⅝	.11¼	
64-66 390 end point	.11⅞	.12¼	.12¼	.12½	.12	.12¼
64-66 375 end point	.12½	.12⅝	.12½	.12¾	.12¼	.12½
68-70 360 end point	.13		.13	.13¼	.13	.13¼
NORTH LOUISIANA—						
56-58 450 end point	.09⅞	.10	.10	.10¼	.10	.10¼
58-60 437 end point (U. S. Motor)	.10		.10¼	.10½	.10¼	
60-62 400 end point	.11¼	.11½	.11½	.11¾	.11½	.11¾
64-66 390 end point	.12	.12¼	.12½	.12¾	.12¼	.12½
64-66 375 end point	.12¼	.12½	.12¾	.13	.12½	.13
ARKANSAS—						
58-60 450 end point	.09¾	.10	.10	.10¼	.10	.10¼
58-60 437 end point (U. S. Motor)	.10	.10¼	.10¼	.10½	.10¼	
64-66 375 end point	.12½	.12¾	.12½	.12¾	.12½	.12¾
ROCKY MOUNTAIN STATES—						
*58-60 437 end point (U. S. Motor)	.12¾	.13	.13	.13¼	.13	.13¼
PENNSYLVANIA—						
52 Naphtha	.11¼	.11½	.11¼	.11½	.11¼	.11½
54 Naphtha	.11½	.12	.11½	.12	.11½	.12
56 Naphtha	.12	.12¼	.12	.12¼	.12	.12¼
58 Naphtha	.12¼	.12½	.12¼	.12½	.12¼	.12½
60 Gasoline	.13½	.13¾	.13½	.13¾	.13½	.13¾
62 Gasoline	.14	.14½	.14	.14½	.14	.14½
64 Gasoline	.15	.15¼	.15	.15¼	.15¼	.15½
66 Gasoline	.16¼	.16½	.16¼	.16½	.16¼	.16½
68-70 Gasoline	.19¾	.20	.20	.20½	.20	.20½
CALIFORNIA—						
54-58 437 end point (U. S. Motor) domestic	.11	.11½	.11	.11½	.11	.11½
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 end point (Naphtha)	.09	.09¼	.09		.09	
56-58 450 end point	.09¼	.09½	.09¼	.09½	.09¼	.09½
58-60 437 end point (U. S. Motor)	.09¾	.10	.10		.09¾	.10
60-62 400 end point	.11¼	.11½	.11½	.11¾	.11¼	.11½
64-66 375 end point	.12¼	.12½	.12½	.12¾	.12¼	.12½
68-70 360 end point	.13¼	.13½	.13½	.13¾	.13¼	.13½

*Colorado points.

NATURAL GASOLINE

	Jan. 19		Jan. 12		Jan. 5	
OKLAHOMA (Group 3)—						
Grade Double A, 80-87.9, 375 e.p., rec. 90%	.10	.10¼	.10½	.10¾	.10⅝	.10¾
Grade A, 72-79.9, 375 end point, rec. 90%	.10¼		.10½	.10¾	.10⅝	.10¾
Grade Double B, 84-92, 375 e.p., rec. 85%	.09¼	.09⅜	.09¼	.09⅜	.09⅞	.10
Grade B, 76-83.9, 375 end point, rec. 85%	.09¼	.09⅜	.09½	.09¾	.09⅞	.10
Grade C, 80-90, 375 end point, rec. 78%	.08½	.08¾	.09¼	.09½	.09⅜	.09⅝
NORTH TEXAS—						
Grade Double A, 80-87.9, 375 e.p., rec. 90%	.09¾	.10	.10½	.10¾	.10⅝	.10¾
Grade A, 72-79.9, 375 end point, rec. 90%	.10	.10⅛	.10½	.10¾	.10¾	
Grade Double B, 84-92, 375 e.p., rec. 85%	.09¼		.09½	.09¾	.10	
Grade B, 76-83.9, 375 end point, rec. 85%	.09¼		.09½	.09¾	.10	
Grade C, 80-90, 375 end point, rec. 78%	.08¾	.09	.09½		.09½	.09¾
NORTH LOUISIANA—						
Grade A, 72-79.9, 375 end point, rec. 90%	.10½	.10¾	.11	.11¼	.11½	.11½
Grade B, 76-83.9, 375 end point, rec. 85%	.10	.10¼	.10½	.10¾	.10¾	.11
Grade C, 80-90, 375 end point, rec. 78%	.09½	.09¾	.09¾	.10	.09¾	.10
CALIFORNIA—						
78-85 absorption, 360-390 end point	.15	.15½	.15	.15½	.15	.15½
78-84 compression, 350 end point	.15	.15½	.15	.15½	.15	.15½
CHICAGO DISTRICT (Based on Group 3)—						
Grade Double A, 80-87.9, 375 e.p., rec. 90%	.10¼	.10½	.10½	.10¾	.10¾	.11
Grade A, 72-79.9, 375 end point, rec. 90%	.10¼	.10½	.10½	.10¾	.10¾	.11
Grade Double B, 84-92, 375 e.p., rec. 85%	.09¼	.09½	.09¾	.10	.10	.10¼
Grade B, 76-83.9, 375 end point, rec. 85%	.09¼	.09½	.09¾	.10	.10	.10¼
Grade C, 80-90, 375 end point, rec. 78%	.08¾	.09	.09¼	.09½	.09½	.09¾

MOTOR NATURAL GASOLINE (BLENDS)

	Jan. 19		Jan. 12		Jan. 5	
OKLAHOMA (Group 3)—						
60-62 450 end point	.09⅝	.09¾	.09¾	.10	.09¾	.10
64-66 437 end point	.10		.10¼	.10½	.10¼	.10½
68-70 430-435 end point	.10¼	.10½	.10½		.10½	
NORTH TEXAS—						
58-60 450 end point	.09½	.09⅝	.09½	.09¾	.09½	.09¾
PENNSYLVANIA—						
*60-62	.12½	.12¾	.13½	.13¾	.13½	.13¾
*64-66	.12¾	.13	.13¾	.14	.13¾	.14
*66-68	.13		.13¾	.14	.13¾	.14
*68-70	.13		.14	.14½	.14	.14½
CHICAGO DISTRICT (Based on Group 3)—						
60-62 450 end point	.09¾	.10	.09¾	.10	.09¾	.10
64-66 437 end point	.10¼	.10½	.10¼	.10½	.10	.10¼

*At Sistersville, W. Va.

BURNING OIL

	Jan. 19		Jan. 12		Jan. 5	
KANSAS—						
41-43 water white Kerosene	.05¾	.06	.05¾	.06	.05¾	.06
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.05½	.05⅝	.05½	.05¾	.05¼	.05⅝
42-44 water white Kerosene	.05¾	.05⅞	.05⅞	.06	.05⅝	.05¾
40-41 prime white Kerosene	.05⅜	.05½	.05⅜	.05½	.05⅛	.05¼
NORTH LOUISIANA—						
41-43 prime white Kerosene	.05⅞	.06	.05¾	.06	.05¾	.06
42-44 water white Kerosene	.06	.06¼	.06	.06¼	.06	
ROCKY MOUNTAIN STATES—						
*40-44 water white Kerosene	.08½	.08¾	.08½	.08¾	.08¼	.08⅜
NORTH TEXAS—						
41-43 water white Kerosene	.05⅞	.06	.05⅞	.06	.05¾	.06
40-42 prime white Kerosene	.05½	.05¾	.05½	.05⅝	.05½	.05⅝
41-43 prime white Kerosene	.05¾	.05⅞	.05⅝	.05⅞	.05½	.05¾
42-44 water white Kerosene	.06	.06⅛	.06	.06¼	.06	.06¼
ARKANSAS—						
41-43 water white Kerosene	.05¾	.06	.05¾	.06	.05¾	.06
42-44 water white Kerosene	.06		.06		.06	
PENNSYLVANIA—						
43 Kerosene prime white	.07¼	.07½	.07¼	.07½	.07¼	.07½
45 Kerosene water white	.07½	.07⅝	.07⅝	.07⅞	.07½	.07¾
46 Kerosene water white	.08½	.09	.08½	.09	.08	.08½
47 Kerosene water white	.08¾	.09	.08¾	.09	.08¾	.09
34 Neutral	.07¾	.08	.07¾	.08	.07¾	.08
34 Sundebloom Neutral	.08¾	.09	.08¾	.09	.08¾	.09
36 Miners' Neutral	.07	.07¼	.07	.07¼	.07	.07¼
300 Mineral Seal	.07¾	.08	.07¾	.08	.07¾	.08
CALIFORNIA—						
40-42 water white (high burning test)	.07⅛	.08	.07½	.08	.07½	.08
Engine distillate, 43-45 445 end point	.08½	.09	.08½	.09	.08½	.09
Engine distillate, 42-44 450 end point	.08¼	.08½	.08¼	.08½	.08¼	.08½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.05⅝	.05¾	.05½	.05⅝	.05¼	.05⅝
42-44 water white Kerosene	.05⅞	.06	.05¾	.05⅞	.05½	.05⅝

*Colorado points.

FUEL OILS

	Jan. 19		Jan. 12		Jan. 5	
KANSAS—						
24-26 Fuel Oil	1.35	1.40	1.35	1.45	1.35	1.45
32-36 Gas Oil	.03¾	.04	.04	.04⅛	.04	.04⅛
38-40 Distillate	.04		.04⅛	.04¼	.04⅛	.04¼
OKLAHOMA (Group 3)—						
Below 22 Fuel Oil (sellers' cars)	1.20	1.22½	1.22½	1.27½	1.22½	1.25
22-26 Fuel Oil (sellers' cars)	1.20	1.25	1.27½	1.30	1.25	1.27½
24-26 Fuel Oil (buyers' cars)	1.25	1.27½	1.27½	1.30	1.25	1.30
24-26 Fuel Oil (sellers' cars)	1.25	1.27½	1.30	1.32½	1.27½	1.30
28-30 Fuel Oil (sellers' cars)	1.35	1.37½	1.40		1.35	1.40
32-36 Gas Oil (dark)	.03½		.03⅝		.03⅝	
32-36 Gas Oil (light)	.03⅝	.03¾	.03⅝	.03⅝	.03⅝	.03¾
36-38 Distillate	.03¾	.03⅞	.04		.04	
38-40 Straw Distillate	.03⅞	.04	.04	.04⅛	.04	.04⅛
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	1.30	1.35	1.35	1.40	1.37½	1.45
26-30 Fuel Oil	1.40	1.45	1.45	1.50	1.55	1.60
32-36 Gas Oil (dark)	.03½		.03½	.03⅝	.03½	.03⅝
32-36 Gas Oil (light)	.03½	.03⅝	.03⅝	.03¾	.03⅝	.03¾
38-40 Straw Distillate	.03¾	.03⅞	.03⅞	.04	.03⅞	.04
NORTH LOUISIANA—						
18-20 Fuel Oil	1.10	1.15	1.12½	1.15	1.10	
32-36 Gas Oil	.03¾	.04	.04		.03¾	.04
ARKANSAS—						
38-40 Distillate	.04	.04⅛	.04⅛	.04¼	.04⅛	.04¼
32-36 Gas Oil	.03¾	.03⅞	.03⅞	.04	.03⅞	.04
22-26 Refinery Fuel Oil	1.20	1.25	1.25		1.25	
GULF COAST (South Texas)—						
Gas Oil	.05	.05¼	.05	.05¼	.04¾	.05
Fuel Oil	1.65	1.70	1.55	1.60	1.50	1.55
PENNSYLVANIA—						
30-34 Fuel Oil	.05¾	.06	.05¾	.06	.05¾	.06
36-40 Fuel Oil	.06¼	.06½	.06¼	.06½	.06¼	.06½
CALIFORNIA—						
33-36 Distillate	.04¾	.05	.04¾	.05	.04¾	.05
27-35 Distillate	.04	.04½	.04	.04½	.04	.04½
15-20 Fuel Oil (at tidewater)	1.00	1.04	1.00	1.04	1.00	1.04
27 plus Diesel Oil	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars, Group 3)	1.25	1.30	1.30	1.35	1.32½	1.37½
18-22 (El Dorado)	1.20	1.25	1.27½	1.30	1.25	1.32½
18-20 (Smackover)	1.05	1.10	1.02½	1.05	1.02½	1.07½
32-36 Gas Oil	.03¾	.03¾	.03⅝	.03⅞	.03⅝	.03¾
36-38 Distillate	.03¾	.03⅞	.03¾	.04	.03¾	.04
38-40 Straw Distillate	.04⅛	.04¼	.04⅛	.04¼	.04⅛	.04¼

LUBRICATING OILS AND WAX

	Jan. 19		Jan. 12		Jan. 5	
OKLAHOMA (Group 3)—						
70-80 vis., 2½ color, 20-25 cold test	.05	.05¼	.05	.05¼	.05	.05¼
100 vis., 3 color, 20-25 cold test	.04¾	.05	.04¾	.05	.04¾	.05
100 vis., 2 color, 20-25 cold test	.05	.05½	.05	.05½	.05	.05½
150 vis., 3 color, 20-25 cold test	.08½	.09	.08¼	.09	.08½	.09
150 vis., 4 color, 20-25 cold test	.08¼	.08¾	.08¼	.08¾	.08¼	.08¾
180 vis., 4 color, 23-28 cold test	.09	.09½	.09	.09½	.09	.09½
180 vis., 3 color, 23-28 cold test	.09¼	.09¾	.09¼	.09¾	.09¼	.09¾
200 vis., 3 color, 23-28 cold test	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
200 vis., 4 color, 23-28 cold test	.10	.10½	.10	.10½	.10	.10½
220 vis., 3 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
220 vis., 4 color, 25-30 cold test	.13	.13½	.13	.13½	.13	.13½
240 vis., 3 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
240 vis., 4 color, 25-30 cold test	.13	.13½	.13	.13½	.13	.13½
280 vis., 3 color, 25-30 cold test	.15½	.16	.15½	.16	.15¼	.16
280 vis., 4 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
Red Neutrals:						
180 vis., 5 color, 23-28 cold test	.08¾	.09¼	.08¾	.09¼	.08¾	.09¼
180 vis., 6 color, 23-28 cold test	.09½	.10	.09½	.10	.09½	.10
200 vis., 5 color, 23-28 cold test	.09¾	.10¼	.09¾	.10¼	.09¾	.10¼
200 vis., 6 color, 23-28 cold test	.10½	.11	.10½	.11	.10½	.11
220 vis., 5 color, 25-30 cold test	.13	.13½	.13	.13½	.13	.13½
220 vis., 6 color, 25-30 cold test	.12½	.13	.12½	.13	.12½	.13
240 vis., 5 color, 25-30 cold test	.12½	.13	.12½	.13	.12½	.13
240 vis., 6 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
280 vis., 5 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

Cylinder Stocks:						
180-200 vis., S. R. green, 40-45 cold test...	.08	.08½	.08	.08½	.08	.08½
190-200 vis., S. R. green, 40-45 cold test...	.07	.07½	.07	.07½	.07	.07½
170-190 dark green, 40-45 cold test	.05½	.06	.05½	.06	.05½	.06
190-200 vis. @ 210 "D" Bright Stock	.33	.35	.33	.35	.33	.35
200-210 vis. @ 210 "E" Bright Stock	.30		.30		.30	
150 vis. @ 210 "E" Bright Stock	.27		.27		.27	
150 vis. @ 210 "D" Bright Stock	.28		.28		.28	
Waxes:						
124-126 White Crude Scale Wax	.04.9	.05	.05	.05⅛	.05	.05¼
PENNSYLVANIA—						
150, 3 color	.20		.20¼		.20¼	
180, 3 color	.23		.23¾		.23¾	
200, 3 color	.26¼		.26¼		.26¼	
220, 3 color	.28		.28		.28	
600, steam refined	.18¼		.19¼		.19¼	
635, steam refined	.21¾		.22		.22	
650, steam refined	.23½		.24½		.24½	
600, Pennsylvania flash	.26½		.27		.27	
630, Pennsylvania flash	.35		.37		.37	
*550, E filtered	.30		.30		.30	
600, E filtered	.21½		.22		.22	
*600, E filtered	.22		.22½		.23	
600, D filtered	.27		.28		.26	
550, E filtered	.19		.19		.19	
550, D filtered	.21¾		.22½		.22½	
Pennsylvania Bright Stock	.38½		.39½		.39½	
122-124 White Crude Scale Wax	.05⅝	.05½	.05⅝	.05½	.05½	
†124-126 White Crude Scale Wax	.05½	.05⅝	.05½	.05⅝	.05⅝	.06

*At Warren. Pa. †At New York City.

GULF COAST (South Texas)—						
Zero Black	.06	.07	.06	.07	.06	.07
No. 2 color, 100 vis., pale oil	.07½	.08	.07½	.08	.07½	.08½
No. 2½ color, 150 vis., pale oil	.10	.10½	.10	.10½	.10	.10½
No. 3 color, 200 vis., pale oil	.12½	.13	.12½	.13	.12½	.13
No. 3½ color, 300 vis., pale oil	.16	.16½	.16	.16½	.16	.16½
No. 3¾ color, 500 vis., pale oil	.19	.19½	.19	.19½	.19	.19½
No. 4 color, 750 vis., pale oil	.20½	.21	.20½	.21	.20½	.21
No. 1½ plus color, 150 vis., pale filtered...	.22		.22		.22	
No. 2 plus color, 200 vis., pale filtered...	.23½		.23½		.23½	
No. 2 color, 300 vis., pale filtered	.27½		.27½		.27½	
No. 2½ color, 500 vis., pale filtered	.31½		.31½		.31½	
No. 2½ color, 750 vis., pale filtered	.41½		.41½		.41½	
No. 5 to 6 color, 200 vis., red oil	.10½	.11	.11	.11½	.11	.11½
No. 5 to 6 color, 300 vis., red oil	.12	.12½	.12½	.13	.12½	.13
No. 5 to 6 color, 500 vis., red oil	.13½	.14	.14	.14½	.14	.14½
No. 5 to 6 color, 750 vis., red oil	.18	.18½	.18½	.19	.18½	.19
CALIFORNIA—						
130 pale, 2½-3 color	.10	.10½	.10	.10½	.10	.10½
200 vis., 2½-3 color	.13½	.16	.13½	.16	.13½	.16
300 vis., 3 -3½ color	.15	.17½	.15	.17½	.15	.17½
350 vis., 3½-4 color	.16½	.19	.16½	.19	.16½	.19
400 vis., 3½-4 color	.18	.20½	.18	.20½	.18	.20½
Red Neutrals:						
200 vis., 4½-5 color	.12	.14½	.12	.14½	.12	.14½
300 vis., 5 -6 color	.13	.15½	.13	.15½	.13	.15½
400 vis., 5 -6 color	.15	.17½	.15	.17½	.15	.17½
500 vis., 4½-5 color	.18	.21	.18	.21	.18	.21
500 vis., 6 -6½ color	.16	.19	.16	.19	.16	.19
600 vis., 6½ plus color	.17	.19½	.17	.19½	.17	.19½

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK DOMESTIC MARKET

Bayonne Refinery Prices:	Jan. 19	Jan. 12	Jan. 5
U. S. Motor Gasoline, 58-60 437	.13	.13	.13
Export Gasoline, 64-66 Be.	.16	.16	.16
*Bunker Oil, 14-16 Be.	1.75	1.75	1.65
*Diesel Oil, New York City	2.20	2.20	2.10
Furnace Oil, New York City	.10	.10	.10
Gas Oil, 32-36 Be.	.06¼	.06¼	.06¼
41-43 Kerosene prime white	.07¼	.07¼	.07

*Lighterage 6.5c a barrel extra.

NEW YORK EXPORT PRICES

Motor Gasoline:	Jan. 19	Jan. 12	Jan. 5
58-60 Be. gravity, in cases	.27.15	.27.15	.27.15
Standard white Kerosene, in cases	.17.90	.17.90	.17.90
Water white Kerosene, in cases	.19.40	.19.40	.19.40
†Lubricating Oils (in bulk):			
Cylinder Stock, extra filtered, 600 bbls.	.34	.34	.34
Cylinder Stock, light filtered, 600 bbls.	.29	.29	.29
No. 5 Bright Stock, .897 spec. grav.	.40½	.40½	.40½
No. 1 White Neutral, .878 spec. grav.	.36	.36	.36
Pale oil, "25" .898 spec. grav.	.12	.12	.12
Pale oil, "28" .892 spec. grav.	.08	.08	.08
Special "A" red oil, .897 spec. grav., 170 vis.	.11½	.11½	.11½
No. 2 red oil, .903 spec. grav., 212 vis.	.12	.12	.12
No. 1 red oil, .905 spec. grav., 265 vis.	.13½	.13½	.13½
Polar red oil, .903 spec. grav., 295 vis.	.14	.14	.14
Paraffin Wax:			
120-122 a.m.p., per lb.	.06⅛	.06⅛	.06⅛
125-127 a.m.p., per lb.	.06¼	.06¼	.06¼
130-132 a.m.p., per lb.	.06½	.06½	.06½
135-137 a.m.p., per lb.	.07¼	.07¼	.07¼
Petrolatum, in bbls., carload lots, per lb.:			
Amber	.03⅝	.03⅝	.03⅝
Light amber	.03⅞	.03⅞	.03¾
Cream	.06	.06	.06
Lily white	.08	.08	.08
Snow white	.10	.10	.10

†All lub prices in barrels.

LOS ANGELES EXPORT PRICES

	Jan. 19		Jan. 12		Jan. 5	
Kerosene water white	.05	.05½	.05	.05½	.05	.05½
U. S. Motor Gasoline, 54-56 437 end point..	.08	.10	.08	.10	.08	.10

CRUDE OIL PRICES

Arkansas and North Lousiana

Caddo, 38° and above	$1.95
35° to 37.9°	1.85
32° to 34.9°	1.75
Below 32°	1.65
Homer, 35° and above	1.75
32° to 34.9°	1.65
31° to 32.9°	1.55
Below 31°	1.40
Haynesville, 33° and above	1.65
Below 33°	1.55
El Dorado, 33° and above	1.65
Below 33°	1.55
Bull Bayou, 38° and above	1.75
35° to 37.9°	1.60
32° to 34.9°	1.45
Cotton Valley	1.10
De Soto	1.80
Crichton	1.60
Bellevue	1.65
*Stephens, Ark:	
Below 26°	1.20
26° and above	1.40

*Posted by Atlantic Oil Producing Co.

Smackover:	
(Standard Oil Co. Louisiana)	
Below 24°	.85
24° to 24.9°	1.15
25° to 25.9°	1.20
26° to 26.9°	1.25
27° and above	1.30
(Atlantic Oil Producing Co.)	
Below 23°	.90
23° to 23.9°	.95

Wyoming, Montana, New Mexico and Colorado

Rock Creek (Wyo.)	1.75
Salt Creek:	
29° to 29.9°	1.23
30° to 30.9°	1.31
31° to 31.9°	1.39
32° to 32.9°	1.47
33° to 33.9°	1.55
34° to 34.9°	1.63
35° to 35.9°	1.71
36° to 36.9°	1.79
37° and above	1.87
Big Muddy	1.75
Mule Creek	1.25
Grass Creek (light)	1.90
Grass Creek (heavy)	.90
Elk Basin	1.90
Lance Creek	1.90
Osage	1.90
Cat Creek (Mont.)	1.90
Sunburst (Mont.)	1.15
Lost Soldier	1.10
Greybull and Torchlight	1.90
Hamilton Dome	1.55
Hogback, (N. Mex.)	1.95
Artesia, (N. Mex.)	1.35
Florence (Colo.)	1.35

Lost Soldier and Lander based on contracts.

Oklahoma, Kansas, North and East Central Texas

*Prairie Oil & Gas Co. and other major purchasing companies except as noted.

28° to 28.9°	1.15
29° to 29.9°	1.23
30° to 30.9°	1.31
31° to 31.9°	1.39
32° to 32.9°	1.47
33° to 33.9°	1.55
34° to 34.9°	1.63
35° to 35.9°	1.71
36° to 36.9°	1.79
37° to 37.9°	1.87
38° to 38.9°	1.95
39° to 39.9°	2.03
40° to 40.9°	2.11
41° to 41.9°	2.19
42° to 42.9°	2.27
43° to 43.9°	2.35
44° and above	2.43

For crude under 28° gravity, brought only from producers having connections on November 1, 1925, Prairie Oil & Gas Co. pays on a basis of an 8-cent spread for each degree.

***Humble Oil & Refining Co.**
(North Texas, Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran.)

Below 28°	1.07

Other grades same as Prairie Oil & Gas.

***Magnolia Petroleum Co.**
(Oklahoma, Kansas and Texas.)

Below 28°	1.07

Other grades same as Prairie Oil & Gas Co.

Luling	1.10
Iatan	1.15
Mirando City	1.05
Corsicana heavy	1.05
Thrall	1.00

***The Texas Co.**
(Oklahoma and Texas)

Below 28°	1.07

Other grades same as Prairie Oil & Gas Co.

Panhandle:	
(Posted by Kay County Gas Co.)	
28° to 30.9°	1.05
31° to 33.9°	1.20
34° to 36.9°	1.35
37° to 39.9°	1.55
40 and above	1.55
Gypsy Oil Co.—	
Bristow, Glenn Pool, Morris and Perryman:	
25° to 25.9°	.91
26° to 26.9°	.99
27° to 27.9°	1.07

Other grades same as Prairie Oil & Gas Co.

Champlin Refining Co.—	
38° to 38.9°	2.10
39° to 39.9°	2.18
40° to 40.9°	2.26
41° to 41.9°	2.34
42° to 42.9°	2.42
43° to 43.9°	2.50
44° and above	2.58

Gulf Coast

Grade A	1.50
Grade B	1.25
Luling (Magnolia)	1.10
Laredo (Magnolia Petroleum Co.)..	.85
Lockhart (Magnolia)	2.25
Rockdale-Minerva (Milam County)	1.25
Calliham (Live Oak-McMullen)....	2.05
Webb, Jim Hogg, Zapata.....	1.15
*High Island	1.20

*Posted by Sun Oil Co.

***Somerset**

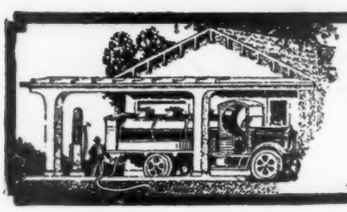
Below 30°	1.25
30° to 32.9°	1.35
33° to 35.9°	1.80
36° to 38.9°	1.95
39° to 41.9°	2.10
42° and above.....	2.35

*Posted by Grayburg Oil Co.

Eastern States

Penna Grade Oil in New York Transit Lines	3.65
Bradford District Oil in National Transit Lines	3.65
Penna Grade Oil in National Transit Lines	3.55
Penna Grade Oil in Southwest Pa. Pipe Lines	3.55
Penna Grade Oil in Eureka Pipe Line Lines	3.50
Penna Grade Oil in Buckeye Pipe Line Lines	3.30
Cabell Grade Oil in Eureka Pipe Line Lines	2.10
Corning Grade Oil in Buckeye Pipe Line Lines	1.95
Somerset Medium Oil in Cumberland Pipe Line Lines.....	2.20
Somerset Light Oil in Cumberland Pipe Line Lines.....	2.35
Rag'and Grade Oil in Cumberland Pipe Line Lines.....	1.15
Gaines	2.95
Lima	1.98
Wooster	2.00
Illinois	1.87
Indiana	1.78
Princeton	1.87
Plymouth	1.40
Waterloo	1.00
Oil Springs, Canada	2.45
Petrolia, Canada	2.38
*Western Kentucky, 36° and above	1.80
*Western Kentucky, 35° to 35.9°...	1.70

(Continued on Page 132)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns, Jan. 19.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

Main Service Station Price

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Chicago Dist.—				
†Less than 100 gals.	16.0	18.0	...	11.0

Tank wagon prices on April 19, 1922; g. up 1½c; May 8, g. up 1c; June 27, g. and k. up 1c; July 19, g. down 2c, k. down 1c; Oct. 10, g. down 2c; Oct. 21, g. down 1c; Feb. 5, 1923, g. up 1c; Feb. 20, g. up 1c; Aug. 14, g. down 6.6c; Oct. 4, k. down 1½c; Nov. 10, g. down 1.4c; Dec. 20, g. up 2c; Jan. 12, 1924, g. up 2c, k. up 1c; Feb. 5, g. up 2c, k. 1c; July 18, g. down 1c; July 30, g. and k. down 1c; Sept. 12, g. down 2c; Jan. 23, 1925, g. up 1c; Jan. 26, g. up 1c; Jan. 31, g. up 1c; Feb. 12, g. up 2c, k. up 1c; April 19, g. down 1c; July 14, g. up 1c; Aug. 25, g. down 2c, k. down 1c; Sept. 1, g. down 1c.

Decatur, Ill.	16.2	18.2	...	11.5
East St. Louis	15.1	17.35	...	10.6
Joliet	16.4	18.4	...	11.7
Peoria	10.5	12.5	...	11.7
Quincy	16.2	18.2	...	11.3
Davenport, Ia.	18.5	20.5	2.0	11.9
Des Moines	18.5	20.5	2.0	11.9
Keokuk	18.5	20.5	2.0	11.9
Sioux City	18.0	20.0	2.0	11.5
Duluth, Minn.	17.5	19.5	2.0	12.6
Minneapolis	17.2	19.2	2.0	12.6
La Crosse, Wis.	19.2	21.2	2.0	12.1
Milwaukee	18.1	20.1	2.0	11.3
Madison	18.3	20.3	2.0	11.5
Detroit, Mich.	18.8	20.8	2.0	12.2
Grand Rapids	18.7	20.7	2.0	12.1
Saginaw	18.9	20.9	2.0	12.3
Evansville, Ind.	19.0	21.0	3.0	11.5
Fort Wayne	19.4	21.4	3.0	11.9
Indianapolis	19.2	21.2	3.0	11.7
South Bend	19.4	21.4	3.0	11.9
Fargo, N. D.	19.9	21.9	1.0	14.6
Huron, S. D.	17.0	19.0	3.0	13.1
Sioux Falls	18.0	20.0	3.0	12.6
*K. C., Mo.	18.9	20.9	3.0	10.3
*Springfield	18.8	20.8	3.0	11.2
*St. Louis	17.6	19.9	2.5	11.0
*St. Joseph	18.0	20.0	2.5	10.9
Wichita, Kan.	17.8	19.8	2.0	10.8
Bartlesville, Ok.	16.9	18.9	3.0	9.9

*State tax is 2c. Remainder is city tax. †Quantity price on more than 100 gallons, 15.0.

The following monthly rebate system is effective on tank wagon schedules throughout the territory of Standard Oil Co. of Indiana: Over 750 gallons, ½c; over 2,000 gallons, ¾ cent; over 3,000 gallons, 1 cent; over 6,000 gallons, 1½ cents; over 10,000 gallons, 2 cents. If quantity bought during the year is equal to 12 times the monthly agreed purchases the discount will be paid or credited on the entire quantity less monthly payments. Service station customers will receive discount of 1 cent a gallon on purchases amounting to 200 gallons a month or 2,400 gallons a year; and 2 cents a gallon on 600 gallons a month of 7,200 gallons a year.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Newark, N. J.	15.0	17.5	...	14.0
Atlantic City	16.0	....	...	14.0
Annapolis, Md.	17.0	....	...	13.5
Baltimore	17.0	20.0	2.0	11.0
Cumberland	17.0	20.0	2.0	14.0
Washington	17.0	20.0	2.0	13.0
Norfolk, Va.	*8.0	21.0	3.0	14.0
Petersburg	18.0	....	3.0	14.0
Danville	18.0	....	3.0	14.0
Richmond	18.0	21.0	3.0	14.0
Roanoke	18.0	21.0	3.0	14.0
Keyser, W. Va.	18.5	....	3.5	14.0
Charleston	18.5	21.5	3.5	14.0
Parkersburg	18.5	21.5	3.5	14.0
Wheeling	18.5	21.5	3.5	14.0
Charlotte, N. C.	19.0	22.0	4.0	14.0
Hickory	19.0	....	4.0	14.0
Mt. Airy	19.0	....	4.0	14.0
Salisbury	19.0		4.0	14.0
Charleston, S. C.	20.0	23.0	5.0	14.0
Columbia	20.0	23.0	5.0	14.0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Atlanta, Ga.	22.0	25.0	3.5	16.0
Augusta	22.0	25.0	3.5	15.5
Macon	22.0	25.0	3.5	14.5
Savannah	17.0	20.0	3.5	14.0
Birm'gham, Ala.	19.0	22.0	2.0	15.5
Mobile	18.0	21.0	2.0	13.0
*Montgomery	20.0	23.0	3.0	16.5
Clarksdale, Miss.	19.0	22.0	3.0	13.0
Jackson	19.0	22.0	3.0	12.0
Natchez	18.5	21.5	3.0	12.5
Vicksburg	18.5	21.5	3.0	12.5
Jacks'nville, Fla.	20.0	23.0	4.0	14.0
Miami	22.0	25.0	4.0	15.5
Pensacola	20.0	23.0	4.0	14.5
Tampa	20.0	23.0	4.0	14.0
Covington	19.0	22.0	3.0	15.0
Lexington, Ky.	18.0	21.0	3.0	15.0
Louisville	20.0	23.0	3.0	13.0

*In addition to the State tax of 2 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and ½ cent on kerosene.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
*Pittsburgh, Pa.	17.0	22.0	...	13.0
*Philadelphia	17.0	22.0	...	13.0
*Scranton	17.0	22.0	...	13.0
*Allentown	17.0	22.0	...	13.0
Altoona	17.0	22.0	...	13.0
*Erie	17.0	22.0	...	13.0
Dover, Del.	19.0	22.0	2.0	13.0
Wilmington	19.0	22.0	2.0	13.0
Springf'ld, Mass.	17.0	19.0	...	14.5
Worcester	17.0	19.0	...	14.5
Boston	17.0	20.0	...	14.0
Providence, R.I.	18.0	21.0	1.0	14.0
Hartford, Conn.	19.0	21.0	2.0	13.5
New Haven	19.0	22.0	2.0	14.0

*Pennsylvania tax of 2 cents is collected by the dealer and paid by him direct to the State.

SOUTHWESTERN DISTRICT

***Magnolia Petroleum Co.**

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Dallas, Tex.	15.0	19.0	1.0	12.0
Fort Worth	14.0	16.0	1.0	10.0
Houston	17.0	19.0	1.0	12.0
San Antonio	13.0	15.8	1.0	10.0
El Paso	18.0	19.0	1.0	13.0
Texarkana	17.0	20.0	1.0	12.5
Muskogee, Okla.	19.0	22.0	3.0	9.0
Oklahoma City	19.0	22.0	3.0	12.0
Tulsa	17.0	20.0	3.0	12.0
Little Rock	18.0	21.0	4.0	13.5
Ft. Smith, Ark.	18.0	21.0	4.0	13.5

*The following is the schedule of discounts on gasoline adopted by the Magnolia Petroleum Co. in Texas sales and the discounts are graded according to gallonage: Over 750 gallons a month, ½ cent; over 2,000 gallons, ¾ cent; over 3,000 gallons, 1 cent; cent; over 4,500 gallons, 1¼ cents; over 6,000 gallons, 1½ cents; over 8,000 gallons, 1¾ cents; over 10,000 gallons, 2 cents. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 200 gallons a month, 1 cent; over 300 gallons a month, 1¼ cents; over 400 gallons, 1½ cents; over 500 gallons, 1¾ cents; over 600 gallons, 2 cents. The same rule applies for annual purchases as in the tank wagon discounts.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Albany, N. Y.	17.0	....	...	15.0
*New York	17.0	....	...	15.0
Buffalo	15.0	....	...	15.0
Rochester	15.0	....	...	15.0
Syracuse	16.0	....	...	15.0
Boston, Mass.	17.0	....	...	....
Providence, R.I.	18.0	....	1.0	....
Augusta, Me.	20.0	....	3.0	15.0
Manchester, N. H.	19.0	....	2.0	15.0
Burlington, Vt.	19.0	....	2.0	15.0

*Price in steel barrels.

Note: Standard Oil Co. of New York does not generally quote service station price in its territory. In most cases the service station price is 2 or 3 cents higher than tank wagon price.

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
All Ohio points.	20.0	22.0	2.0	13.0

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Casper, Wyo.	19.5	21.5	2.5	13.0
Cheyenne	20.5	22.5	2.5	14.5
Albuquerque, N. Mex.	23.5	26.5	3.0	16.5
Salt Lake, Utah	23.0	25.0	3.5	18.0
Denver, Colo.	19.0	21.0	2.0	14.5
Pueblo	19.0	21.0	2.0	14.5
Butte, Mont.	21.0	21.0	2.0	16.0
Helena	23.0	25.0	3.0	17.0
Boise, Idaho	23.0	25.0	3.0	20.0

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
*New Orleans	16.5	19.5	3.0	12.5
Alexandria	16.0	19.0	2.0	13.5
Baton Rouge	15.0	18.0	2.0	12.0
LaFayette	16.0	19.0	2.0	13.0
Lake Charles	16.5	19.5	2.0	13.5
Shreveport, La.	15.0	18.0	2.0	12.5
Memphis, Tenn.	16.5	19.5	3.0	14.5
Chattanooga	17.0	20.0	3.0	15.0
Knoxville	18.0	21.0	3.0	15.5
Nashville	17.0	20.0	3.0	15.0
Bristol	18.5	21.5	3.0	15.0
Little Rock, Ark	18.0	21.0	4.0	13.5

*Tax of 3 cents includes city tax of 1 cent.

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
San Francisco	16.0	20.0	2.0	15.5
Los Angeles	14.5	18.5	2.0	16.5
Fresno	16.5	20.5	2.0	17.5
Reno, Nev.	21.5	25.5	4.0	19.0
Portland, Ore.	17.0	21.0	3.0	16.5
Seattle, Wash.	16.0	20.0	2.0	16.5
Spokane	20.0	24.0	2.0	20.5
Tacoma	16.0	20.0	2.0	16.5
Phoenix, Ariz.	23.0	26.0	3.0	21.5

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Service station	Incids tax of	Kero. Tank wagon
Omaha	17.25	19.25	2.0	11.5
Crawford	19.0	....	2.0	13.25
McCook	19.75	21.75	2.0	13.0
Norfolk	18.75	20.75	2.0	12.0
North Platte	19.75	21.75	2.0	12.75
Scottsbluff	19.25	21.25	2.0	12.25

INDIAN LEASE SALE

George Hoyo, superintendent of the Indian agency at White Eagle, Okla., for the Otoes, Poncas and Tonkawas, is to have a leasing day on January 28, when at 2 o'clock in the afternoon at the agency he will receive sealed bids on 81 tracts of unrestricted Indian lands. Of these 29 are the Ponca Indian country, 51 in the Otoe and 1 in the Tonkawa, which lies just north of the Tonkawa oil field. Altogether Hoyo is offering for lease 2,069 acres of Ponca land, 2,827 acres of Otoe land and 40 of Tonkawa.

H. F. SINCLAIR EXPECTS HIGHER PRICES FOR OIL

NEW YORK, Jan. 18.—H. F. Sinclair, chairman of the Sinclair Consolidated Oil Co., returned on the White Star liner Majestic, pleased with the European oil outlook.

"Europe is consuming more petroleum products both in England and on the Continent than ever before," said Mr. Sinclair. "I am very much pleased with the consumption abroad. Indications are that the oil industry is in a very healthy state. From what I can learn of things here in the United States after a six weeks' absence I think the oil business is facing the future with better prospects than in a number of years.

"I rather expect higher prices will come in the oil industry if consumption increases as it shou'd. We still have our interests in Russia on Sakhalin Island, but the property is in what you might call status quo at the moment."

DELAYED BY SOVIET CONTRACT

Owing to possibilities of criticism by other oil companies and political discussion over Soviet oil dealings, Anglo-Persian Oil Co., Ltd., according to a report from London, defers concluding participation with Deutsche Petroleum. The obstacle is the contract by Deutsche Petroleum to buy a large quantity of Russian oil.

ROYAL DUTCH BOND ISSUE

Bataafsche Petroleum Co., subsidiary of Royal Dutch Co., is issuing 24,000,000 guilders 4½ per cent bonds at 97½. Of this amount 6,000,000 guilders have already been placed. This is the first portion of the loan of 72,000,000 guilders authorized some time ago. The bonds are guaranteed by Royal Dutch Co. and Shell Transport & Trading Co.

TANK WAGON PRICE CHANGES

January 9—Standard Oil Co. of New York reduced the tank wagon price of gasoline 2 cents at Burlington, Vt.

January 13—Standard Oil Co. of Nebraska reduced tank wagon and service station prices of gasoline 1 cent at Omaha.

CRUDE OIL PRICES

(Continued from Page 131)

Western Kentucky, 32.9° and below 1.60
Cumberland, Barren and Monroe Counties (Kentucky), (Paragon Development Co.) 2.35
*Prices for Warren, Allen, Hancock, Simpson and Ohio Counties by Indian Refining Co.

Mexican Crude

*Tuxpam light (f.o.b. Mex. ports).. 1.75
‡Panuco heavy (f.o.b. Mex. ports).. 1.45
Tuxpam (New York) 2.25
Panuco (New York) 1.82

*Plus 30:45c tax. ‡16.94c tax.

CALIFORNIA PRICES

Gravity	Long Beach	Richfield Huntington Beach Brea-Olinda	Rosecrans Dom'gues	Torrance Inglew'd	Whittier La Habra Montebello	Coyote	Santa Fe	Kern River Newhall McKitt'k	Midway-Sunset Elk Hills	Lost Hills Belridge	Coalinga	Wheeler Ridge	Santa Maria Ventura Salt Lake
14°	$ .85	$ .85	....	$ .85	$ .85	$ .85	....	$ .75	$ .75	$ .75	$ .75	$ .75	$ .85
15°	.87	.87	....	.87	.85	.85	....	.76	.75	.75	.75	.75	.85
16°	.90	.90	....	.90	.85	.85	....	.76	.75	.75	.75	.75	.85
17°	.94	.94	....	.94	.85	.85	....	.75	.75	.75	.75	.75	.85
18°	.98	.98	....	.98	.85	.85	....	.75	.75	.75	.75	.75	.85
19°	1.02	10.2	....	1.02	.85	.85	....	....	.79	.79	.79	.78	.89
20°	1.06	1.06	....	1.06	.87	.88	....	....	.84	.84	.84	.81	.93
21°	1.10	1.10	....	1.10	.89	.94	....	....	.92	.89	.89	.84	.98
22°	1.14	1.14	....	1.14	.91	1.00	....	....	1.00	1.00	.94	.87	1.03
23°	1.18	1.18	....	1.18	.94	1.06	....	....	1.08	1.08	.99	.90	1.08
24°	1.22	1.22	....	1.22	.97	1.13	.97	....	1.16	1.16	1.04	.93	1.13
25°	1.26	1.26	....	1.26	1.00	1.18	1.05	....	1.24	1.24	1.09	.96	1.18
26°	1.30	1.30	$1.30	1.30	1.03	1.24	1.13	....	1.32	1.32	1.14	.99	1.23
27°	1.34	1.34	1.34	1.34	1.06	1.30	1.21	....	1.40	1.40	1.19	....	1.28
28°	1.38	1.38	1.38	1.38	1.09	1.36	1.28	....	1.48	1.48	1.24	....	1.33
29°	1.42	1.42	1.42	....	1.12	1.42	1.34	....	1.56	1.56	1.29	....	1.38
30°	1.46	1.46	1.46	....	1.15	1.48	1.40	....	1.64	1.64	1.34	....	1.43
31°	1.52	....	1.52	....	....	....	1.46	....	1.72	1.72	1.39	....	1.47
32°	....	....	1.58	....	....	....	1.53	....	1.80	1.80	1.44	....	1.51
33°	....	....	1.64	....	....	....	1.60	....	....	....	1.54	....	1.55
34°	....	....	1.70	....	....	....	1.68	....	....	1.88	1.49	....	1.60
35°	....	....	1.76	....	....	....	1.76	....	....	....	....	....	....
36°	....	....	1.84	....	....	....	1.84	....	....	....	....	....	....
37°	....	....	1.92	....	....	....	1.92	....	....	....	....	....	....
38°	....	....	2.00	....	....	....	2.00	....	....	....	....	....	....
39°	....	....	2.08	....	....	....	....	....	....	....	....	....	....
40°	....	....	2.16	....	....	....	....	....	....	....	....	....	....
41°	....	....	2.24	....	....	....	....	....	....	....	....	....	....
42°	....	....	2.30	....	....	....	....	....	....	....	....	....	....

SINCLAIR OILS

REG. U.S. PAT. OFF.

THE SINCLAIR trade-mark does more than identify oils of quality.

It symbolizes the ideals of our Company. It represents our ambition to co-operate with Sinclair dealers to attain mutual growth.

Sinclair dealers know that it also represents our obligation to maintain their prestige with a product as conscientious as their service.

We stay behind the obligation — and the trade mark guarantee: —

Your money's worth or your money back.

SINCLAIR REFINING COMPANY

NEW YORK
Sinclair Oil Bldg., 45 Nassau St.
Telephone: Rector 9320

CHICAGO
22nd and Rockwell Streets
Telephone: Crawford 2000

Cable Address: "Lucent"

SINCLAIR OILS

Ad No. 10

INSTITUTE RETAINS CHARLES E. HUGHES

(Continued from Page 29)

Congress in which the board will detail present and past conditions and submit recommendations for the treatment of the nation's oil resources.

To Submit Further Report

It is probable that the Committee of Eleven will be ready to submit its further report to the Federal Oil Conservation Board during the course of the hearings.

It will be recalled that the committee's report on "American Petroleum—Supply and Demand," which went exhaustively into the subject of petroleum resources and probable future demand, after being submitted to the Federal Oil Conservation Board, brought a request from Secretary Work upon the American Petroleum Institute for further facts as to the production and consumption of oil. Secretary Work's criticism, as expressed in his letter, was that the report had barely mentioned conservation and he wanted any information the institute cared to submit as to measures it would recommend concerning a petroleum conservation policy.

At a meeting held in New York in December the board of directors of the Institute approved the report of the Committee of Eleven by a vote of 19 to 5, thereby putting itself on record as backing the committee's conclusions, the essential points of which were that there is no danger of immediate shortage of oil and that the availability of future petroleum supplies from the vast area of land considered by the committee as oil-bearing depends upon adequate incentives to exploration and development under private operation without Government interference.

This action has been variously interpreted and criticised, as has the Committee of Eleven's report, and some views expressed officially and some unofficially have been to the effect that the apparent opposing views of the committee and of certain members of the Federal Oil Conservation Board was unduly emphasized instead of an effort being directed to reconcile opinions and to show the industry's disposition to cooperate in so far as it could consistently, with the Government board.

The Institute directors at the December meeting referred Secretary Work's letter to the Committee of Eleven for study and directed that a report be made to the board of directors at the earliest possible date. Subsequently it is understood that the committee suggested a conference with Secretary Work's board and that it indicated its disposition to work in close cooperation with that board.

Due to the holidays the board was unable to arrange the conference and it has proceeded with its plans for the hearings in Washington. Meantime the Committee of Eleven went ahead with its further study.

The Committee of Eleven comprises J. Edgar Pew, president, American Petroleum Institute; E. W. Marland, president, Marland Oil Co.; D. M. Folsom, director, General Petroleum Corp.; E. T. Wilson, chairman of board, Continental Oil Co.; K. R. Kingsbury, president, Standard Oil Co. of California; George S. Davison, president, Gulf Refining Co.; W. S. Farish, president, Humble Oil & Refining Co.; J. C. Donnell, president, Ohio Oil Co.; W. N. Davis, president, Mid-Continent Oil & Gas Association and vice president Phillips Petroleum Co.; Frank Haskell, president, Tidal Oil Co., and R. L. Welch, general secretary, American Petroleum Institute.

COMMITTEE OF ELEVEN APPROVED BY INSTITUTE

(Continued from Page 29)

of alcohol products, these, together with more economical uses of oil, all form a safe background that furnishes assurance to the country and to the public that no calamitous condition is in prospect from any cessation of oil supplies or of their substitutes. These sources are all capable of infinite development that will only come when conditions demand, and price justifies.

"The report of the Committee of Eleven shows these conditions and should set at rest any anxiety for the future of our product.

"The report also shows that, considering the conditions under which oil is necessarily produced, and the volatile character of the product, there is a minimum of waste, and that this condition is being bettered: That the losses are now less than in the past, both in the production of oil and in the manufacture of oil products. Great advances have been made in methods of production and in the conservation of the product within the past few years, and advances are being made continually, bringing about better economies in practices of all kinds within the industry.

"Your Committee of Eleven has been continued by the board of directors, and has advised the President's board at Washington of its desire to assist it in any further manner it may suggest."

Practical Conservation

Consolidation of oil companies and freedom from unnecessary duplication in various lines of petroleum enterprise as voluntary steps within the industry toward promotion of conservation were advocated by Mr. Shoup. "These things," he said, "we must do within the industry and it may be that in their doing we will need freedom from some existing legislation in one direction and the cover of constructive legislation under which to act in another." Mr. Shoup himself was unable to attend the meeting because of business in New York in connection with the consolidation of the Pacific Oil Co. with the Standard Oil Co. of California, but his address was read by Earle Dean, of the Pacific Oil Co. Mr. Shoup's address follows, in part:

"Recurrently some one brings up the question of conservation of oil upon the ground if it is not conserved shortly within some period of time ranging from 7 to 100 years, we will be without it, but as I understand it, conservation means that the individual shall have all the oil that he needs. Gasoline, fuel or other products for a very reasonable price, but that somewhere, somehow, other people are to be deprived of oil for the benefit of years and generations to come. If somebody suggested that we conserve oil by the simple process of limiting the number of automobiles to be manufactured in the United States each year, there would be a roar that could be heard from the Atlantic to the Pacific.

"The waste in use is a question that the oil industry can deal with but cannot control. If the public is wasteful in the consumption of oil it is because the oil industry is too efficient in its production. The public is always wasteful with the thing that is cheap. It is hard to get people to pick up pins even though all day they have good luck. Economy and efficiency are apt to be promoted as the article used grows more dear in price. When gasoline is 50 cents a gallon throughout the United States, and it is not probable it will be in our time, then cars will be moved many miles more to the gallon than at present. The improvements will come in the automobile in its design, in its weight and in the engine that moves it, but I fear that as long as we have oil up and down the United States at prices so low that the cost of fuel in running an automobile is not much more than incidental, just so long there will be wastefulness in its use.

Inimical Legislation

"Legislation does not change human nature. Legislation restrictive upon the oil industry and on the prize held up for enterprise, might very well, before a great while, deprive the people of the United States of an adequate oil supply. I see little else that we can do except as it may constructively promote, largely by freedom from restrictions rather than imposing restrictions, co-ordination of activities in drilling, transportation, storage and the like, so that there may be no unnecessary waste of energy and of material in bringing forth oil from the depths of the earth, transforming it into forms for use and delivering it to every householder at whatever his need may be. If we can reach the point where no two oil wells will be drilled where one will serve, perhaps, or where no two gathering systems will be built when one is enough, or where there will not be a multitude of refineries beyond the needs of the market in any locality, we will have achieved something. These things we must do within the industry and it may be that in their doing we will need freedom from some existing legislation in one direction and the cover of constructive legislation under which to act in another.

"I was told by a friend on the street the other day that I was not now half the oil man that I had been. And after some conversation he explained that he understood the principal oil company with which I had been associated was being consolidated with another. That is true and I look for further consolidations. The development of oil, its manufacture and distribution to be efficiently and economically done is on the whole a problem for organizations of size and capital in large aggregation. I do not mean by this that there is no room for the small producer or a small refiner, but it is not he who will supply the national needs or has such reservoirs of oil, money or facilities as will meet these varying needs in widely scattered locations, and as long as a reasonable competition between companies strong enough each to take care of this is maintained, there is no reason why consolidation of companies should not proceed.

Wasteful Distribution

"There has been a great waste in our industry in distribution. There is a multiplication of service stations and other contacts with the public that economically cannot be justified. There is so much gasoline and so much lubricating oil to be sold in any given section. Investments in facilities that can be supported by this public demand are unnecessarily limited. It is perhaps the tendency on the part of all of us when we are making money to expand. We all want our place in the sun. We want to be as big as the Indiana or the New Jersey or the Gulf or The Texas or some other large concern. We are perhaps unconscious of the fact that in adding to our business, aside from the division of the natural growth, we must take something from our neighbor and if he is strong and active, as he is very apt to be, he does not intend to lose his business and strikes back by trying to take something from us or somebody else. Millions of dollars are unnecessary invested and wasted on this theory. Perhaps consolidation or communities of ownership among the oil companies will help in stopping this waste.

"Aside from exercising good judgment as to when fields should be brought in, our principal responsibility to the public lies in constantly reinforcing our present oil fields with new discoveries. Better that we use our energy and money in that way than to multiply facilities such as refineries, service stations and unnecessary competition with each other. Every time we discover a new oil field we add to the riches of the world, but every time we put a dollar in structures above ground we put a burden on the unknown oil below ground to support and amortize the oil.

"Man may have the genius of an Aladdin but constantly he is but the servant of someone else. When he discovers these new fields he adds to the power and energy of the world, he places at the command of the country potential transportation in a tremendous way and so in this industry we should be particularly jealous in guarding the rights and privileges of the men who seek new fields and who often risk their all in so doing."

Bedford Memorial Session

Mr. Requa gave many intimate details of the work done by Mr. Bedford during the war and he attributed his untimely death to not only the strain of the war period but to that of the readjustment period following. He recalled that Mr. Bedford was born three years after the drilling of the Drake well and continued:

"He was born in the gray dawn of the industrial day; he became an active participant in the rose-dawn and in the full glory of the industrial morning he was an outstanding leader, whose unselfish contribution of public service will, perhaps, outlast and outweigh his contributions of service to the corporations with which he was identified.

"Mr. Bedford was a great industrialist, but he was more than that; his broad vision, his sympathetic understanding of mass psychology, his realization of the complexities attendant upon modern scientific development and modern civilization, made him a great leader of men not only in industry but in the social and spiritual side of life as well. He saw the romance and the glamour of the industrial age; the possibility for human betterment fascinated him, for he was an altruist quite as much as he was an industrialist.

"His was a kindly, courteous, and sympathetic nature. In peculiar degree he had the ability of winning the confidence and esteem of his fellowmen. His efforts in behalf of public service and charitable enterprise were given freely, gladly, instinctively and without stint. In his passing, the industry has lost its wisest counselor, its most broad visioned executive—many of us have lost a friend.

"He has laid down his burdens. It is for us to pick them up, and go forward under the inspiriation of his example and his ideals. Let us think of him, meanwhile, as resting from his labors and finding everlasting reward in the sunshine of the eternal morning."

Committees at Work

Committee meetings were held on Monday. All committees reported progress, including the standardization committees. Their reports were taken up and will be discussed at the group sessions held on today and tomorrow.

The committee on testing methods and specifications discussed among other things the proper method of interpolation in the use of gravity correction tables.

The special committee on method of testing vapor pressure met with Colonel Dunn, chief of the Bureau of Explosives, to discuss possible methods of increasing safety in the transportation and handling of gasoline.

The newly reorganized general committee on fire prevention held its first meeting to receive various reports of subcommittees and to plan its future activities. It was decided to make arrangements for a compilation of the current fire record of the industry along the lines of the 10-year record recently compilated by a special subcommittee.

Election of Directors

The following new members were elected to the board of directors of the American Petroleum Institute: George H. Jones, chairman of board Standard Oil Co. of New Jersey; Wallace E. Pratt, Humble Oil & Refining Co., as directors at large, succeeding the late A. C. Bedford and Alexander Duessen. Frank Phillips, president, Phillips Petroleum Co., and W. C. Franklin, Tidal Oil Co., as directors production division, central United States, succeeding J. S. Markham, Jr., and Frank Haskell. A. B. MacBeth, Midway Gasoline Co., natural gasoline division, succeeding T. B. Gregory, and W. S. Earhart, White Star Refining Co., central United States distribution division, succeeding W. H. Barber.

The following directors whose terms expired were reelected: H. F. Sinclair, E. L. Doheny, Mark L. Requa, George S. Davison, J. D. Collett, J. Edgar Pew, J. C. Donnell, E. W. Clark, T. A. Dines, P. M. Miskell, F. A. Pielsticker, Charles A. Suhr, A. H. Coombe, H. E. Felton, D. E. Buchanan, Herbert L. Pratt, J. F. Lucey, E. C. Lufkin, Thomas A. O'Donnell, W. N. Davis, E. B. Reeser, J. W. Vandyke, Henry L. Doherty.

Uniform Accounting Plan

It was announced by H. M. Mattison of New York, chairman of the committee on taxation and accounting, that this committee during the last year has completed the general balance sheets as a first unit in the uniform accounting scheme. This is heralded by executives as one of the greatest steps in the industry.

PERCENTAGE DEPLETION BASIS REPLACES DISCOVERY ALLOWANCE

By C. E. Kern

WASHINGTON, D. C., Jan. 19. — A percentage basis has been substituted for discovery allowance, simplifying the administration of the bill both for the Government and for the taxpayer, in the depletion provision of the revenue bill to be reported to the Senate tomorrow.

Section 204, relating to petroleum, as it will be reported tomorrow, reads:

"Section 204: (c) The basis upon which depletion, exhaustion, wear and tear, and obsolescence are to be allowed in respect of any property shall be the same as is provided in subdivision (a) or (b) for the purpose of determining the gain or loss upon the sale or other disposition of such property, except that:

(1) In the case of mines discovered by the taxpayer after February 28, 1913, the basis for depletion shall be the fair market value of the property at the date of discovery or within 30 days thereafter, if such mines were not acquired as the result of purchase of a proven tract or lease, and if the fair market value of the property is materially disproportionate to the cost. The depletion allowance based on discovery value provided in this paragraph shall not exceed 50 per centum of the net income of the taxpayer (computed without allowance for depletion) from the property upon which the discovery was made, except that in no case shall the depletion allowance be less than it would be if computed without reference to discovery value. Discoveries shall include minerals discovered or proven in an existing mine or mining tract by the taxpayer after February 28, 1913, not included in any prior valuation."

The oil section reads: "(2) In the case of oil and gas wells, the allowance for depletion from and after December 31, 1924, shall be 25 per centum of the gross income from property during the taxable year, provided such allowance shall not exceed 50 per centum of the net income of the taxpayer (computed without allowance for depletion) from the property except that in no case shall the depletion allowance be less than it would be if computed without reference to this paragraph."

With a flat percentage for depletion and cutting out the discovery section altogether the oil man is no longer required to prove discovery. The House bill specified that a well in a new field discovered an area of 160 acres of which it was the center and no other property owner in that area would have been allowed discovery depletion. Under the common practice in the fields of drilling as near as possible to the discovery well, it was possible under the terms of the House bill for an entire new field to be discovered with only one person being allowed credit in his taxes for the discovery.

The provision as reported is expected to go through the Senate without much trouble. After the Senate has passed the bill the fight will be between the House and the Senate provisions on this point, the two sections being entirely different.

William N. Davis, president, and Harry H. Smith, secretary of the Mid-Continent Oil and Gas Association, asked for a depletion allowance of 35 per centum of the gross instead of 25 voted by the committee.

The report of the Senate committee, under the chairmanship of Senator Couzens, which investigated the Bureau of Internal Revenue, signed by Senators Couzens, Jones, New Mexico, and King, Utah, Democrats, bitterly attacked discovery depletion, declaring that "large oil corporations were escaping taxation through tremendous deductions for depletion."

"Discovery depletion is an exemption from taxation upon realized increment in value not enjoyed by other taxpayers," the report said. "Upon a tax of 12½ per cent this exemption to the oil industry alone amounts to approximately $37,500,000 annually, and during the high tax period it was correspondingly greater. But a minor part of this exemption is received by the wildcatter or prospector for whose benefit it was intended. The major portion of this exemption goes to the large oil producing companies which also deduct the prospecting and developing expense, intended to be offset by discovery depletion from income as operating expense.

"The regulations governing discovery depletion do not confine this exemption to the discovery of new deposits, but permit the blanketing of known pools of oil with discovery values to be depleted, free of tax.

"The statutory limitation of the value to be depleted, to that evident on the date of discovery or within 30 days thereafter, is ignored by the commissioner of internal revenue and indefinite periods of time are allowed within which to fully develop values to be deducted from taxable income as discovery depletion.

"It is very clear that the purpose of the provision for discovery depletion was to stimulate prospecting for new deposits of mineral and oil, yet the allowance of discovery depletion is not confined to the taxpayers who discover deposits of mineral or oil, nor to deposits discovered since March 1, 1913, but is allowed to taxpayers who develop discoveries made by others, and deposits known to exist prior to March 1, 1913."

The Couzens report charged that in the valuation of oil property there appears to be no system, no adherence to principle, and a total absence of competent supervision.

"Numerous cases were called to the attention of the committee in which values, varying by more than 100 per cent, are made the basis of depletion allowances to the owners of undivided interests in the same oil property," the report said.

Referring to analytic appraisals which determin value to be depleted by discounting estimated expected profits, it is asserted that they are too elastic and leave too much to the judgment of individual engineer to be "suitable for taxation purposes." An amendment is needed says the report, to permit substitution of a more suitable methods. In the valuation of oil properties there appears to be no system, no adherence to principle and a total absence of competent supervision.

Commissioner of Internal Revenue Blair, according to the report, has exercised so little supervision over valuation work that practically all discretion in the matter has been left to S. M. Greenidge, who is described as "incompetent and generally unfit for any position in the Government service requiring the exercise of engineering ability and sound discretion."

HARRY HENDERSHOT DEAD

Harry L. Hendershot, for the past two years district sales representative for the Reading Iron Co., with headquarters in Los Angeles, Calif., died of heart disease at Paso Robles, Calif., while returning to Los Angeles from a business trip through the fields. The body was taken to Los Angeles and thence to Parkersburg, W. Va., where burial will be conducted on Thursday, January 21. The deceased was born in Parkersburg 33 years ago. He was for some years with the J. J. Crotty Iron Works before going to the Coast for the Reading Iron Works. He is survived by his wife, one son, his mother, Mrs. J. K. Hendershot, and two brothers, Herman of Tulsa, and Norman of Los Angeles.

ORDERS STANDARD CARS

SHARON, Pa., Jan. 18.—Standard Tank Car Co. has booked orders for 100 tank cars for Phillips Petroleum Co. and 50 cars for Pennzoil Co. The orders approximate $500,000.

"DINGBAT KELLY," KNOWN IN MANY OIL FIELDS, ANSWERS LAST CALL

SHREVEPORT, La., Jan. 15.—Oil fields today are very much as they were a generation ago, and there is still the wild rush to the latest wildcat gusher, but somehow things have changed; the atmosphere of the oil fields isn't quite what it was 20 or 30 years ago, the pioneers of the Mid-Continent and Gulf Coast fields are rapidly passing from the stage, leaving it to the younger generation upon whom the real "old-timers" are inclined to look more or less askance as brash "boll weevils" who have lots to learn. One of these old-timers, a picturesque figure, abandoned locations here just a day or two ago, and was buried at El Dorado, scene of his last active participation in things petroliferous. He was A. G. Dennett, but few of the oil fraternity knew him by that name. Ask them if they know any such man and 9 out of 10 would reply in the negative, but ask 'em if they knew "Dingbat," "Dingbat" Kelly, and it is the other way 'round.

Studied for Priesthood

Soldier of fortune, driller, adventurer, "Dingbat's" life was a romance of the oil fields. Born in Appomattox, Va., in 1870, closely related to the noted Otis and Collis P. Huntington families, he was sent to Notre Dame University after finishing high school to study for the priesthood—and wound up a roughneck; got a new start, rose high in the ranks of practical oil men in the production end of the industry, let his foot slip and skidded back to the foot of the toboggan slide of life. But he left behind more friends in all walks of life in all ranks of the oil industry than he who has never listened to the siren voices luring to the primrose path ever could.

The long, hard years of study for the priesthood had little attraction for young Dennett, and after a short time at Notre Dame he dropped out, turning up again as a cadet at West Point. Two years of army life, after his graduation from the academy, was enough for him and he next turned up in the oil fields in Pennsylvania. From roughneck he graduated to boss driller on cable tool rigs and worked all over the Pennsylvania, Ohio and New York fields, advancing rapidly through all the stages to white collar jobs in the production department for first one and then another of the big companies.

He was in the Texas coastal fields soon after Spindletop and became an expert with a rotary rig as he had been with cable tools. Through all the coastal pools of Texas he worked, and up into Central and North Central Texas, in Oklahoma and Kansas. There wasn't a pool in the whole Mid-Continent where "Dingbat" Kelly wasn't known or that he didn't know.

He was sent to the Mexican fields by the Mex-Hacienda Oil Co., and got mixed up in one of the neighboring republic's pet irritations, one of the early revolutions. Happening to be mixed up in the losing end of that particular disturbance and having the bad taste to be captured, he was sentenced to be shot. Now "Dingbat" wasn't one of the grasping sort who want more than their share, but at the same time he was not one to mildly submit to anything he thought due or belonging to him being taken away from him, and he was distinctly averse to looking a firing squad in the face; not that he didn't have the nerve to stand up and tell 'em not to be nervous and bungle the job, but because he figured he had several years more of life coming to him. So, the day before he was scheduled to play target for Mexican marksmen, he went away from there without leaving a forwarding address, showing up next in the California fields.

Being one of those restless spirits to whom the immediate surroundings soon became banefully monotonous, it wasn't long before the Oklahoma fields called him again and he was there when Caddo approached its zenith, learning which he came to Shreveport and became the right hand man of those who built the Producers Oil Co., and other foundation blocks of several of the new ranking companies in the Mid-Continent. It was natural that he should be one of the early birds in Homer where he was production superintendent for the Baird-Hughes, Vanada, and first one and then another of the other major operators.

When the first well was drilled in Arkansas he was among those present to watch it perform and there he stayed, around El Dorado and Smackover, until the end. With years piling on years, his health failed not so long ago, he could not stand the rigors of field work and at the time of his death, from tuberculosis, in a Shreveport sanitarium, was an employe of the Halliburton Oil Well Cementing Co. at Smackover.—Shreveport Times.

MOSUL NEGOTIATIONS NEARING SETTLEMENT

The Turkish Petroleum Co. is again becoming the center of interest with the approach of Anglo-Turkish negotiations in London on Mosul. Although the British are represented at Angora, the real dealings will be in London, where a Turkish delegation is expected shortly. Meanwhile foreign bondholders waiting in Paris hope to reach a settlement after the London conference.

It is rumored in Turkish circles in London that the British offered the Turks £10,000,000 and then advanced the amount to £25,000,000 as compensation for Mosul.

It is also said the British ogvernment is desirous of having Standard Oil Co.'s participation in Turkish Petroleum Co. as the best way to shatter Turkish hopes of playing Americans against the British. It is believed, a London report says, that Standard Oil is holding off final decision to participate in Turkish Petroleum Co. due to Washington's advice to remain aloof until the British and Turkish governments settle Mosul differences. Standard Oil is not participating in oil survey but is awaiting boundary settlement to begin work.

The Royal Dutch-Shell group have severed all relations with C. S. Gulbenkian and his son and propose to remove them wherever they represent Royal Dutch-Shell interests. The final break has come as a climax to two years of conflicts between these Armenian speculators and the Royal Dutch-Shell group, in which they have large interests, and it is likely to lead to important changes in Mexican Eagle and Turkish Petroleum.

Gulbenkian expected Royal Dutch-Shell support of his claims for cash for his 5 per cent participation in Turkish Petroleum Co. The Royal Dutch-Shell group recognized his claims to 5 per cent, but balked over cash. The final break was due to Gulbenkian and A. E. K. Cull supporting a policy which the Royal Dutch-Shell group opposed. The Shell group now proposes to oust Gulbenkian wherever possible.

The Shell may also support Standard Oil Co. of New Jersey's efforts to get Gulbenkian ousted from Turkish Petroleum Co. Standard refuses to recognize his cash claims.

BUYS WALL STREET PROPERTY

NEW YORK, Jan. 18.—Henry L. Doherty & Co. announce the purchase for the Cities Service Co. of the property at 56 Wall Street. The lot has a frontage of 40 feet on Wall Street and 57 feet on Pine. The Wetmore estate had been holding the property at more than $1,500,000. As the Cities Service Co. recently acquired 60 Wall Street, for many years the headquarters of the Doherty organization, with a frontage on Wall Street of 101 feet, and on Pine Street of 157 feet, the company is now one of the largest owners of Wall Street real estate.

REFINED PRICES SAG AS EXPORTERS QUIT

(Continued from Page 28)

at 9⅝ cents. On the other hand a few refiners maintained quotations at 10 cents and reported business. U. S. Motor gasoline the previous Tuesday was firm at 10 cents with indications of higher prices. The 56-58 450 the past week became free at 9¼ cents while 50-52 450 (naphtha) was sluggish at 8¾ to 9 cents with some sales below this price.

Higher gravity gasolines were not particularly changed in prices but nevertheless they did not occupy the strong position held the previous week when exporters were in the market. As previously mentioned some export buying continued but this was not sufficient to maintain the strength. The 60-62 400 gasoline was obtainable at slightly lower prices than a week ago, most of the orders being at 11¼ cents with a few sales above and below that figure but the 64-66 375 gasoline was difficult to obtain under 12¼, last week's' low price. There was unusually light demand for the 68-70 350 gasoline.

Natural Gasolines and Blends

One of the most conspicuous weak spots which developed during the week was in natural gasolines. There was practically no demand for any grade and prices were forced down rapidly. Grade C was easily available Tuesday at 8½ cents with the B grades at 9¼ and A at 10 cents. Even these prices were reported shaded, especially on B grades. Natural gasoline manufacturers declared that whatever demand there was for neutrals was only for the cheapest grades possible. However, in view of export purchases of higher gravity gasolines, natural gasoline manufacturers are hopeful of a better demand for their product in the near future.

Blended products were difficult to obtain the past week but this was taken as due not to any particularly large demand but to the fact that so few are making these products. Those making blends, however, reported that they could not keep up with the orders. Practically the only grade being made regularly now is the 64-66 437 grade, which moved Tuesday at 10 cents. Occasional orders of 68-70 430-435 were received the past week, these being filled at 10¼ to 10½ cents.

Kerosene and Distillates

Despite reports from some sources that kerosene had a soft undertone, there apparently was no change in the general situation. The product continued scarce with prices strong. Several large refiners, in addition to other buyers, still were in the market and some companies having the products were forced to advance quotations. The 41-43 water white grade continued to move at 5½ to 5⅝ cents, but no purchases were reported below this. The 42-44 grade was strong at 5⅞ cents.

Contrary to this, distillates seemed a drug on the market with sellers making every effort to dispose of products which they had been storing in anticipation of a large winter demand. The spot demand for distillates so far has not been anywhere near as great as refiners had expected and as a result there are large quantities of distillates on hand with no market. Tuesday the 36-38 distillate was available at 3¾ cents with the 38-40 grade at 3⅞ cents.

Fuel Oil and Gas Oil

Fuel oils and gas oil continued sluggish with lower prices. Concessions from market prices were frequent with some poorer fuel being offered as low as $1.15. However, the prevailing market on fuel below 22 gravity Tuesday was $1.20 to $1.22½. The 22-26 grade was offered freely at $1.20 to $1.25 and the 24-26 product at $1.25 to $1.27½. Ordinary gas oil (32-36) moved as low as 3½ cents, although better grades still commanded 3⅝ to 3¾ cents. There were no important developments in railroad fuel contracts during the week. A few contracts were still to be signed but these were expected to be closed in the near future although they are not quite as favorable to refiners as contracts in previous years.

Lubricants and Wax

There was no particular change in the lubricating oil situation during the week. Movements continued fair for this time of year and prices steady, it was reported. Wax, however, was somewhat weaker. There were fewer inquiries and practically no sales were made. One buyer offered to buy 60 tons from one refiner at 4.9 cents.

CRUDE OIL—SUPPLY, DEMAND AND STOCK

(Continued from Page 31)

And that's one of the of the most vital facts in the general situation right now.

Table 1—Crude Oil Balance Sheet For 1923, Stocks January 1 and December 31, Include California Fuel Oil.

Supply—	
Stock, Jan. 1	288,703,842
Production, light oil	598,492,000
Production, heavy oil	133,915,000
Imports from Mexico	79,354,000
Imports, other countries	2,661,000
Total supply	1,103,125,842
Demand	
Run to Stills:	
Domestic oil	538,252,291
Foreign oil	42,985,525
Exports, domestic oil	17,061,000
Exports, foreign oil	324,000
Used otherwise	129,831,785
Stock Dec. 1	374,671,241
Total demand	1,103,125,842

Table 2—Crude Oil Balance Sheet For 1924. Stocks January 1 and December 1 Include California Fuel Oil.

Supply—	
Stock Jan. 1	374,671,241
Production, light oil	543,678,000
Production, heavy oil	170,262,000
Imports, from Mexico	73,979,000
Imports, other countries	3,796,000
Total supply	1,166,386,241
Demand—	
Run to stills:	
Domestic oil	597,954,123
Foreign oil	45,765,226
Exports, domestic oil	17,605,000
Exports, foreign oil	368,000
Used otherwise	101,938,363
Stock, Dec. 31	402,755,529
Total demand	1,166,386,241

Table 3—Crude Oil Balance Sheet for 11 Months of 1925. Stocks January 1 and November 30 Include California Fuel Oil.

Supply—	
Stock Jan. 1	402,755,529
Production, light oil	497,384,000
Production, heavy oil	197,724,000
Imports, from Mexico	51,820,000
Imports, other countries	5,825,000
Total supply	1,155,508,529
Demand—	
Run to stills:	
Domestic oil	639,224,724
Foreign oil	38,432,030
Exports, domestic oil	12,280,000
Exports, foreign oil	196,000
Used otherwise	42,452,775
Stock, Nov. 30	422,923,000
Total demand	1,155,508,529

ETHYL GASOLINE SALE MAY BE RESUMED

(Continued from Page 30)

lead brought about a question of public health hazards from the general use of ethyl gasoline.

In the statement of the Surgeon General just issued covering the report of the committee which investigated ethyl gasoline the committee concludes that there is no valid reason why the sale and use of ethyl gasoline should be prohibited providing the distribution and use are controlled by proper regulations but points out that the health hazard in the manufacture and blending of tetraethyl lead is serious and must be subject to precise regulations and meticulous care. Only in such operations has poisoning occurred. Further, the committee points out, that the present investigation has been necessarily too brief to cover every possiblity of future development and that provision should be made for a continuing study of the problem. In these conclusions the Surgeon General concurs and announces his purpose to confer with health officers of various States, with manufacturers and distributors, and to develop with them every safeguard.

Officials of the Standard Oil Co. of New Jersey here stated their concurrence in this policy and were of the opinion that the whole investigation had been of great benefiit.

The manufacture and sale of ethyl gasoline will begin immediately. It may take several weeks for it to find its way back on the market but the business of the Ethyl Gasoline Corp. will start again where it left off eight months ago. A nationwide sales campaign will be resumed. At the time sales were stopped the principal oil companies marketing ethyl gasoline were the Standard Oil Co. of New Jersey; Standard Oil Co. of Louisiana; Standard Oil Co. of Kentucky; Standard Oil Co. of Indiana; Gulf Refining Co., and there were several smaller companies. The first two companies named will immediately resume the sale of ethyl gasoline as soon as supply is received. Following the suspension of sales by the New Jersey Co. it put out an anti-knock gasoline which it is now stated is a benzol blend and which originally was sold in limited territory to meet competition in Maryland and vicinity where benzol blend gasoline is widely sold. The Standard Oil Co. of Indiana recently began the sale of solite, a cracked gasoline. The Gulf Refining Co. shortly after it discontinued ethyl gasoline began the wide marketing of No-Nox gasoline.

As general distribution of ethyl gasoline is attained it is expected that the General Motors Corp. will go forward with its plan for the making of cars of a higher compression ratio. Officials of the Standard Oil Co. of New Jersey pointed out that this would necessarily be a gradual development. They regard the matter as of great importance from the standpoint of conservation of gasoline. The present engine efficiency is 5 per cent and with the increased efficiency attained by the lead compounded gasoline less fuel will be required in a high compression engine covering the same distance as the present type car.

The most outstanding feature of refining and marketing of motor fuel during the past few years relates to more volatile fuel and anti-knock fuels and the importance of leaded gasoline in conjunction with the development of high compression motors is generally recognized in the industry.

NATURAL GASOLINE CONTRACTS IN 1926

(Continued from Page 30)

manufacturer to this complaint is that the refiner should pay more for the natural gasoline because by blending it with the refinery naphtha or low gravity gasoline he secures a finished product netting him usually from 1 to 4 cents a gallon.

The "pro and con" of this situation has been heard ever since natural gasoline secured wide distribution among refiners. The coming year should determine whether or not refiners can shift their plant operations so as to lessen the amount of natural gasoline required and force a return to a more normal price relationship to refinery and tank wagon gasoline prices.

U. S. Motor Prices

In endeavoring to arrive at some new basis satisfactory both to the buyer and seller for the coming year, some consideration has been given the tank car prices on 58-60 U. S. Motor gasoline. In fact, the largest contracts reported closed so far this year have had for their basis the U. S. Motor price rather than the open market quotations on natural gasoline or the tank wagon schedules.

One large Gulf Coast refiner has made a contract with Oklahoma and North Texas refiners in which the buyer agrees to pay for an absorption gasoline meeting Grade A or AA specifications 1 cent more than the prevailing price for 58-60 U. S. Motor gasoline as determined from trade journal quotations.

Referring to the two tables again it will be noted that in 1925 Grade A natural gasoline brought an average price of 11.98 cents in Oklahoma, while the average weekly price on 58-60 U. S. Motor for the same area was 10.55 cents, a difference of 1.41 cents. This new contract is, therefore, apparently a concession on the part of the natural gasoline seller, based on price conditions prevailing in 1925.

Going back to 1924, 1923 or previous years, it will be found that the contract is a concession on the part of the buyer. In 1924, as shown in Table 1, the average prices for the two products was 9.78 cents and 8.66 cents with the U. S. Motor gasoline, the higher. In 1923 the average prices on natural gasoline was only .17 cents higher. Thus if 1925 is repeated in 1926 the contract is favorable to the buyer, but if the relative relationship of 1924 and 1923 returns the new agreement would net the sellers considerably more than the spot market.

C. P. DODGE EXPIRES AFTER AUTO ACCIDENT

MEMPHIS, Tenn., Jan. 16.—C. P. Dodge, 59, of Houston, Tex., secretary and sales manager of The Texas Co., died Wednesday of injuries received when the automobile in which he was riding here Tuesday night crashed into a tree and was wrecked.

Lee Winchester, an attorney, and his wife and Elisha H. Cannon, owner of the Purity Oil Co. of this city, and Mrs. Cannon, who were also in the car, were injured, but physicians say they will recover.

At the time of the accident, which occurred on a parkway, the party was en route to a railroad station, where Dodge was to have boarded a train to return to Houston after spending several days in Memphis.

All of the occupants of the car were thrown from it when the automobile, driven by Cannon, failed to negotiate a sharp curve and careened from the roadway into a tree. Dodge's spine was fractured. The injuries suffered by the others were mainly lacerations.

HOUSTON, Tex., Jan. 16.—Funeral services for Charles P. Dodge, secretary of The Texas Co. for 22 years and sales manager of the southern division, were held here today and burial took place in Glenwood Cemetery. The following executives of The Texas Co. acted as pallbearers: G. L. Noble, D. J. Moran, W. W. Bruce, S. E. Monroe, W. H. Wagner, W. H. Noble, M. A. Dyer and Ira McFarland.

Honorary pallbearers were: J. S. Cullinan, R. E. Brooks, J. T. Scott, T. J. Donoghue, R. C. Holmes, Dr. Marvin Graves, Dr. James A. Hill, Dr. T. A. Dickson, Dr. John Foster, Dr. J. P. Arnold, B. F. Bonner, Walter H. Walne, F. T. Manley, Judge R. A. John, C. N. Scott, A. M. Donoghue, C. G. Pillott, Earnest Carroll, Judge W. O. Crain, R. C. Galbraith, J. S. Jones, William Carroll, G. M. Worthington, J. G. Detwiller, L. H. Daniel, D. F. Beaman, Gentry Worley, J. E. Taylor and Judge Samuel Streetman.

Mr. Dodge is survived by his wife and the following children: C. P. Dodge, Jacksonville, Fla.; Kent, Houston; H. T., Casper, Wyo.; H. W., of New York and Mrs. Kemerton Deane of Houston.

NEW FIELDS IN PERSIA

Anglo-Persian Oil Co. is reported to have made important oil discoveries in northern Persia, but will not disclose details yet. Lack of transportation would prevent immediate exploitation.

Action of Silicates With Petroleum

Experimental Work Shows Wide Industrial and Scientific Importance. The Effect on Oils Depends Upon Structures

By P. G. Nutting

The use of fuller's earth and similar silicates as filtering media for petroleum and petroleum fractions is well known among technologists. The first oil through is water white regardless of whether the oil has been topped or not. This colorless oil (about 1-5 the volume of the filter) is followed in succession by canary, yellow and red oils and finally by unfiltered oil. The dark fraction retained by the filter is but partly removable by water or by powerful solvents. High temperature or oxidation (burning) or both are resorted to for restoring the filter. Filter materials absorb moisture from the air up to a content of 15 to 25 per cent. This must be reduced to 3 to 5 per cent to secure optimum filtering activity.

Commercial silica gel is largely used for the recovery of hydrocarbon solvents in vapor phase and for separating a wide variety of gases from the air. Silica gel also is most active only when the moisture content is low. A light colored crude petroleum passed through silica gel comes out darker than when it entered, indicating a chemical action of the gel on the oil. Colloidal silica prepared from rather concentrated solutions of HCl and water glass on the other hand, filters like fuller's earth, bauxite, bentonite, serpentine, green sand, etc., clear oil coming through first.

A light filtered crude oil covering and filling colloidal aluminum silicate in a tube becomes very dark at the top of the silicate when moisture and oxygen are accessible. An ordinary Pennsylvania oil sand, crushed and heated to drive off excess moisture, will filter oil fairly well, due perhaps to the iron silicate or colloidal silicate coating the sand grains. These and many phenomena of a similar nature led to an attempt to discover the underlying principles and to apply them to some problems in petroleum migration and composition. What is the active principle of the filter, why must its moisture content be low to make it most efficient? How may petroleum react with silica and silicates? What changes are likely to occur in petroleum resting in or passing through sand, with or without water present?

Ordinary Sand

In a paper on chemical problems connected with the water driving of petroleum, published in the Journal of Industrial and Engineering Chemistry, October, 1925, the writer showed that a siloxyl radicle SiOOH on sand grains may bear an important relation to petroleum. It has an open bond and therefore an affinity for open hydrocarbon chains or rings thereby affecting the adhesion between oil and sand. Ordinary sand exposed to the atmosphere always caries a film of adsorbed moisture running about 1 mg per gram or roughly 100 molecules deep over the surface. The sand apparently takes up first H+ then OH— ions from the water, forming a coating of metasilicic acid over the surface. This coating, reacting with weakly held metals, forms say ferrous aluminum silicate in soils. If dehydrated and brought in contact with petroleum, silica would be expected to help itself to weakly attached H+ ions, then to the remainder of the chain or ring with the formation of a surface coating of hydrocarbon siloxylates, such for example as $H_2C.CH_2.CH_2$—$CH_2.SiOOH$ or $C_6H_5.SiOOH$.

In attacking the problem experimentally, colloidal silica and silicates were resorted to on account of the much greater relative surface exposed (fully 100 times that of even fine sand) and the greater ease of observing effects. These are readily prepared by precipitation from solutions of salts of the metals with sodium silicate. The formation of the siloxyl radicle may be indicated by placing a little colloidal silica in a porcelain dish, covering with distilled water and adding a little methyl orange indicator. The silica turns a bright pink while the water (from excess OH— ions) turns yellow.

Of all the numerous silicates prepared, only those of the alkali metals (Na,K) failed to filter crude oil. Those of the alkaline earths (Ca, Ba) filtered only partly and appeared to react considerably with the oil. The remaining silicates: Cu Mg Zn Al Pb Ur Mn and Fe and pure colloidal silica (precipitated by HCl) all filter about equally well and the same as commercial fuller's earth as used by refineries. In order to make certain that the filtering effect of the silicates was not due to free silica contained in them, silicates of copper and of ferric iron were prepared which were quite insoluble in either hot, strong alkali or acid. These filtered perfectly. The inference is therefore that the active principle of fuller's earth is the aluminum silicate which constitutes the major portion of it.

Action of Hydroxides

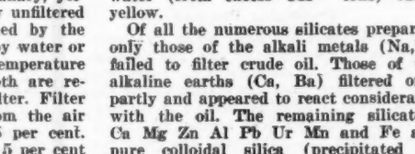
The oxides do not filter oil nor do the carbonates, chlorides, sulphates or other salts. The hydroxides do filter (with the exception of those of the alkalines and alkaline earths) like the silicates, being also salts of weak bases and a weak acid (H.OH). They are difficult to prepare in as porous a condition as the silicates but ferric hydroxide, silica free, if finely powdered will pass five times the quantity of colorless oil passed by the best commercial fuller's earth.

The action of any filter must be in its nature essentially a retardation. Clear oil is retarded least by the filter, yellow next and the red most, while black asphaltic and resinous components are held immovable from the start. Filtering a filtered oil, say yellow, a second time, shows the fractionation to have been at least 85 per cent complete the first time. A little colorless oil comes through first, quickly followed by the unaltered oil. No black component is deposited on the filter. Hence we infer that the characteristic filtrates, yellow, red, etc., represent real differences in oil composition not merely varying amounts of high dilute coloring matter.

If the petroleum hydrocarbons be plotted with a number of carbon atoms as abscissa and proportion of hydrogen ($CnH_{2n}+2$, CnH_{2n} CnH_{2n-2}—CnH_{2n-20}) as ordinate, the colorless compounds are seen to lie toward the top of the chart near the paraffin series and along a diagonal CnHn running through acetylene, benzine, etc. A newly discovered crystalline hydrocarbon having about the composition of $C_{18}H_{20}$ is almost colorless. Far out on the CnH_{2n}-12 series at about $C_{40}H_{28}$ black asphalts are encountered. Near carbons such as $C_{12}H_x$ must approach coal in blackness. It is inferred therefore that oil filtering media retard most those hydrocarbons of higher molecular weight and those deficient in hydrogen.

The dark brown or black deposit clinging to the silicate filter may be partly removed by a solvent or by soda solution but even boiling tetrachlorethane will do no more than reduce it to a brown. Starting with a known tar or asphalt easily soluble in $C_2H_2Cl_4$, mixing with gasoline and filtering, the filtered out deposit, now rendered insoluble by the filter, is apparently in combination with the filter material as a siloxylate on its surface.

In order to be an active filtering agent, silica or a silicate must possess active bonds. Since silicon exhibits a marked preference only for oxygen next to itself, hydrolysis in varying degree is to be expected. The primary forms are silica, SiO_2, O=Si=O; metasilicic acid $H_2O.SiO_2$, H_2SiO_3, O=Si(OH)—(OH) and orthosilicic acid $2H_2O.SiO_2$, H_4SiO_4, Si(HO)(HO)(OH)(OH). In multiple structure, silica exists as quartz, the double bonds apparently opening out laterally to interlock the atoms. Silicic acid may exist in a chain structure of indefinite length, $(n+1)H_2O.nSiO_2$ in the form



which forms the basis of the "brush pile" structure of silica gel in jelly form. Water in excess of about 20 per cent is evidently but loosely held in the interstices between the chains or rods. By heating to several hundred degrees, molecular water is driven off leaving open bonds in great number. Orthosilicic acid can evidently exist only as independent single units unless it releases half its water and assumes the chain structure shown above. Excessive heating leads to incipent rearrangement as silica with double bonded oxygen.

The open bonds exhibited by desicated colloidal silica and many silicates are of two and but two kinds, one extending outward from O, the other from Si. The oxygen bonds are ready to attach to weak bases such as H+, CH_3 C_2H_5, the hydrocarbon ends of resins and organic acids, or even strong bases like Na if not too strongly held by some other radicle. The silicon open bond will attach only to oxygen, some weak acid radicle ending in oxygen, carboxyls or in extreme cases, to a halogen. An open Si bond differs widely from an open carbon bond which will take on H+ or OH— or even another carbon with almost equal facility.

Catalytic Effect

The catalytic effect of silica on petroleum (slowly in the case of cool sand, rapid if heated with desiccated silica gel) is precisely what would be anticipated in the light of these characteristics. The lighter hydrocarbons are relieved of H or CH_3 to later reform into H_2 and CH_4, hydrogen and methane, the principal constituents of natural gas. The remainder of the hydrocarbon molecules simply couple together to form larger ones of the same series; two molecules of ethane C_2H_6 form hydrogen H_2 and butane C_4H_{10}, two of butane form either hydrogen and octane or ethane and hexane, for example. Most abundant natural gas would be expected to occur in connection with the heaviest base petroleums and less gas with lighter petroleums. If one component of the change (the gas) is free to escape or segregate in part, the process would continue until the concentration of dissolved gas brought about equilibrium.

The action of silicates on oil depends upon their structures, in particular upon the existence of terminal double bonded oxygen. Silicate structures is a vast field in itself and but a few typical examples can be cited here. Al_2SiO_5 $Al_2O_3.SiO_2$ O=Al-O-Si-O-Al=O has three double bonded oxygen atoms. $Al_2O_3.2SiO_2$, Al_2O_3. Si.O.SiO_2.Al has none and is inactive. $Al_2O_3.3SiO_2$, $Al_2O_3.Si_2O_5$ again has three double bonded oxygen atoms and is active first toward H+ then OH—. Both the mono- and trisilicates would therefore be expected to behave toward oil and water much as does silica gel. In crystalline form, such silicates are, of course, interbonded like quartz but powdered kyanite Al_2SiO_5, desiccated, was found to be a fair filtering medium for crude oil.

Filtering Action

The filtering action of partly desiccated silica gel and silicates is apparently quite simple. The colorless paraffins $CnH_{2n}+2$ and cyclic compounds CnHn have compact, saturated molecules which pass readily through the filter. The slightly colored, slightly unsaturated hydrocarbons are somewhat retarded while the resins and highly unsaturated compounds are firmly held by the filter, practically in chemical combination with it and are removable only by burning. On the other hand, carefully prepared commercial silica gel, thoroughly dehydrated is so active as to decompose even the saturated colorless hydrocarbons as noted above with the formation of hydrogen, methane and hydrocarbons of higher molecular weight.

The series of hydrocarbons constituting petroleum contains very little oxygen, OH or carboxyl .COOH. But in the presence of water and catalyst silica many combinations occur. One of the simplest is the conversion of a chain hydrocarbon into an alcohol thus $H_2C.CH_2.CH_2$—CH .(H—OH), the end carbon being indifferent as to whether H or OH is attached to it. If crude oil be placed on pure water in a glass vessel a tough skin soon forms on the interface, evidently one of the higher alcohols. Its formation is inhibited by soda in the water, Na bolding the OH away from the oil. Silica of course assists somewhat by drawing away the excess H+ ions. Cook's much discussed experiment (Econ. Geol., Nov. 1925) appears to the writer to be merely a case of such alcohol formation.

Compounds Formed

A wide series of hydrocarbons and organic compounds may be formed from the hydrocarbons present in crude petroleum if sufficiently activated and catalyzed. Consider for example the paraffin series $H(CH_2)nH$. With removal of one H per molecule, condensation to $H(CH_2)$ 2n and H_2 is possible. With removal of one CH_2 per molecule (requiring slightly more energy) condensation to $H(CH_2)$ 2n-2H and ethane C_2H_4 is possible. Removal of 2H from the same molecule reduces the paraffins to the olefins $(CH_2)n$ or to the naphtenes by rearrangement. Removal of 4H per molecule reduces the paraffins to the Cn H_{2n}-2 series. Removal of 6H reduces them to the CnH_{2n}-4 series. Removal of (n+2)H reduces them to CnHn, acetylene, benzine—retene $C_{18}H_{20}$.

If water be present to supply the OH radicle, the change −H+OH converts the hydrocarbons into the alcohols H (CH_2)nOH, (CH_2)nC H O H or (CH_2) C H O H as the case may be. The change −H+OH—H leads to ethers, resins, camphors, and the like. The change −3H+OH in the paraffin series or −H+OH in the olefin series leads to the aldehydes. The change −2H+OH−H gives the keytones and −3H+20H−H the fatty acids from the paraffins. Even the formation of stearic acid $C_{17}H_{35}.COOH$ from petroleum and water in the presence of silica is not without the bounds of possibility. One is led to consider the possibility of such "animal" fats having an inorganic origin.

The results briefly outlined here are of wide industrial as well as scientific importance and appear worthy of intensive quantitative study. An enormous amount of experimental work was done to arrive at the few simple conclusions

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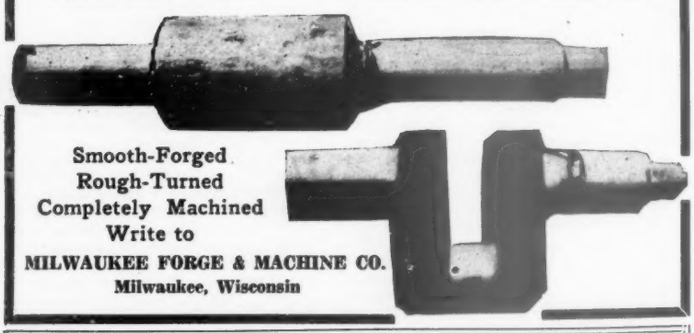

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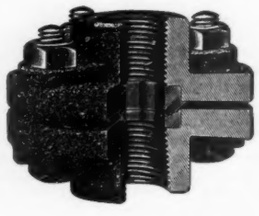

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stated by the evidence thus obtained has shown a very satisfactory unanimity. The ultimate goal is an understanding of the equilibria existing between the various components of petroleum and between these and gas, silica and water.

CONTROL OF PRESSURE URGED BY DOHERTY

(Continued from Page 90)

most startling reduction in viscosity and also a great reduction in surface tension.

It is surprising to me that this discovery was not sooner made by some of the engineers devoting their time exclusively to oil technology, for during the past few years we have all been made to realize more and more that the productivity of our wells and fields was marked by the decline of our gas pressure.

Prolonging Pressure

Many operators have made strenuous efforts to conserve the gas, not because they wanted to conserve it for itself, but because they knew the dissipation of the gas meant a startling decline in oil production, but this was almost wholly on the theory that the free gas was the propulsive force that moved the oil. In my opinion it is the dissolved gas which is the important factor in oil production. I think we can now prove that by prolonging the gas pressure on the pool we can maintain the conditions that now characterize flush production. To allow this gas to come out of solution is in the nature of allowing the oil to thicken and to congeal in the sands.

Some success is now being had in the recovery of oil from abandoned pools by flooding with water. Few abandoned pools have yet been found that can be successfully operated in this manner, but it is only reasonable to suppose that perhaps many pools may be found, which can have all or a large portion of the oil, displaced by water, if flooding is resorted to before the gas is allowed to come out of solution and while the oil is maintained in its most fluid condition and while it has the least tendency to adhere to the sands.

Use of Air

There has also been some promising work achieved by re-establishing pressure on abandoned fields by means of air, that has resulted in the recovery of more or less oil from abandoned fields. Air, I find by experiments, is only slightly soluble in oil and does not reduce its viscosity perceptibly, nor does it reduce its surface tension perceptibly. In some cases air seems to increase the viscosity of oil and I think this is due to an oxidizing action, but upon this feature I will report at later date. Even if gas were used in place of air it probably could not go back into solution with the oil and thereby reduce the viscosity and surface tension of the oil, except after a long period of time, possibly a generation or more. It is obvious that so far as our future pools are concerned, that the pressure of the fields must be maintained and controlled until the maximum amount of oil has been recovered. It is obviously wrong to allow the pressure in a pool to be dissipated and then go back later and endeavor to secure more oil by re-establishing pressure.

In the work I have done on the unit development of pools, I have represented that we could recover double as much oil as we now do and conserve practically all of our gas. This statement was made before I knew all of the things that I know now and which I believe I can fully prove to your experts. I am not prepared as yet to state just how much oil I think can be recovered over what we now recover by our present methods.

Scientific Basis

Up to date my study of this problem has been directed primarily to the establishment of the basic scientific facts, rather than an attempt to apply these facts. It is a source of great regret to me that conditions have forced me to make a report on this study before it has been completed. It is the fate of every investigator along pioneer lines that he generally finds, if compelled to prematurely announce the result of his work,

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that he has merely directed attention to a promising field of investigation, with the result that an army of investigators go to work on the problem and the pioneer finds he has merely opened the door for others, and the contributions which win greater credit are generally made by someone other than himself. In this case, however, time is the important element in conserving and increasing the amount of oil we can recover from our remaining reserves and personal, professional pride should not be permitted to delay the benefits in this work which is of such vast importance to the Nation.

It will be a great disappointment to me if the facts, I can present to your experts, do not result in improvements of such great importance in the production of oil, that it will be beyond what anyone would be willing to predict at this time.

If I were to endeavor to finish this work alone, with only the help of my own engineers, I would want at least three years in which to complete it, but in view of the hearings your Commission is about to hold, and in view of the fact that petroleum technologists will be asked to make their recommendations, before much further work can be done by me, I would feel that I had failed to do my duty if I did not lay such facts as I now possess before your board and before the petroleum industry. I will not attempt to go into all matters in this memorandum, but I will freely disclose all of my work to such experts as you select.

Movement of Oil

I might say, however, that every report of a new discovery in scientific work is apt to be questioned and belittled as was demonstrated by the work of Doctors Gye and Barnard on cancer, but in this case any petroleum engineer can convince himself of the part played by this dissolved gas without resorting to further experiments. Many observations have been made at different petroleum laboratories to determine the rate at which oil will move through oil sands. A simple calculation based on those observations when applied to many gusher fields will show that the thickness of the sand would not provide sufficient flow space to account for the size of our large gusher wells. Again by accumulationg the amount of oil from day to day after a large gusher well has been brought in, would show that such a large area had been drained that the oil must have flowed to the well at a speed greatly in excess of these laboratory observations.

Weight for weight dissolved gas is three times more efficient than commercial gasoline in reducing the viscosity of crude oil and more than 30 times more efficient in reducing its surface tension. In fact, practically every pool of crude oil, so long as the dissolved gas is held in solution, has a surface tension less than that of straight commercial gasoline. (Surface tension being the affinity of a liquid to cling to a solid and, in this case, its affinity to cling to the sands as I have explained before.)

Conserving Helium

I have already communicated to you my recommendations of how helium gas can be conserved and stored against the time of our war needs. This you referred to the United States Bureau of Mines and they have stated that it seems to possess merit and that it would be given careful consideration. However, it may not be amiss to call attention to the fact that this the only country in the world that has a source of helium gas and we have a supply which, if conserved, is practically unlimited. The only source of helium gas, to my knowledge, is that which is contained in natural gas, and we are burning up every day millions of feet of natural gas which contain recoverable amounts of helium, and this, under the unit operation of pools, can be concentrated and stored, and with proper development of our oil and gas pools, these pools can be used for the storage of the concentrated helium gas without any investment whatever for storage reservoirs.

Gas found in association with oil could not be conserved under our present system of operation, no matter how much helium gas it might contain, and the

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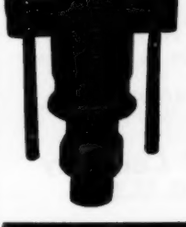

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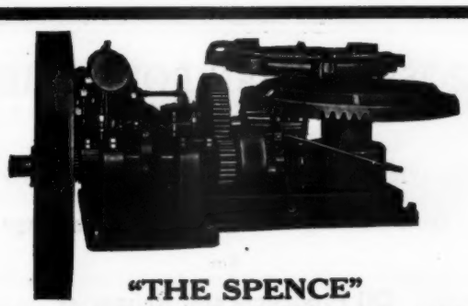

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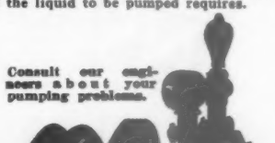

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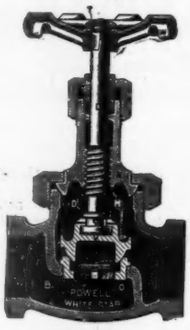

Fig. 102
Sizes ¼ to 3 in.

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waste of gas in all of our flush oil pools is very considerable and in some cases of shocking magnitude. At Cromwell, Okla., my engineers estimate that at one time from 500,000,000 to 700,000,000 cubic feet of gas was being blown into the air every day and some observers estimated this gas to be as much as 1,200,000,000 cubic feet. Converting this latter figure to an energy basis and stating it in terms that will be more comprehensible to the average man, this gas waste was equivalent to 48,000 tons of coal or 200,000 bbls. of oil per day. The gas in the Smackover Field is right now being wasted at a shocking rate. One of the prominent operators at Smackover told me, a few weeks ago, that the amount of gas that had already been wasted at Smackover would have supplied the neighboring cities for more than 50 years.

There need be no waste of gas where pools are developed as units. A waste of gas generally means, for a long time after each flush oil pool has been opened, a waste of valuable gasoline vapor also.

I will be prepared to carry out whatever instructions you may give in connection with this communication.

NEW DIRECTORS FOR BRITISH CONTROLLED

The voting trustees of British Controlled Oilfields, Ltd., have unanimously elected as the board of the company for the ensuing year: Right Honorable Lord Buckmaster, Sir Frederick Eley, Bart; Sir Richard Whieldon Barnett, M. P.; Sir Frederick James Barthorpe, Lieutenant-Colonel Henry Edward Medlicott, D. S. O.; John W. Dennis and Stephen P. Child.

It was further recommended that the number of the board should be increased to 10 and that the following should be coopted to the board: Andrew P. Bennett, C. M. G.; George du Cros and Gilfrid G. Craig.

The board proposed does not take office until approved at the annual meeting of the trust at Montreal. In all probability Lord Buckmaster will be elected as chairman.

Sir Edward Mackay Edgar, Bt., tendered his resignation, received with regret by his colleagues, who recognize the great advance towards prosperity which the British Controlled Oilfields had made under his guidance.

The change in the board of directors is not expected to lead to any important change of management soon. Dr. E. P. Andreae, managing director, was on the point of leaving for Venezuela. The 2-year drilling program has been ended.

The plan to shift the main offices from Canada to London has practically been dropped in consequence of the large British incorporation tax required. Since Sir Edward Mackay Edgar has been eliminated the greatest power now resides in James White and friends. Sir Edward Mackay Edgar has opened offices in his name in New York, London and Montreal.

CLINGER OIL CO. BUYS WARREN, PA., PROPERTY

WARREN, Pa., Jan. 16.—The Clinger Oil & Gas Co. has taken over the leases, gasoline plants and holdings of the late Capt. J. J. Haight, of this city.

The Haight leases at Cooper tract and Hastings are among the best in this section and comprise about 3,000 acres. On the leases are located a number of wells with a production of about 30 bbls. daily and located where a number of wells can be drilled. The Clinger Oil & Gas Co. plans during the coming summer to drill a number of additional wells. During the past five years the gasoline plants have been given much attention by the late Captain Haight and were brought up to a high efficiency. They were built and put in operation at a cost of more than $150,000.

The purchase of this lease involves an amount much greater than has figured in any oil deal made in this vicinity in recent years and although the amount has not been made public it was over a quarter million dollars.

The Clinger Oil & Gas Co. has also

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closed a deal for the purchase of the properties of the Casinghead Gasoline Co. near Tidioute. This company's holdings were composed of 300 acres, several wells and a complete gasoline plant. Oil City parties controlled this company.

The Clinger company is a partnership composed of A. V. and George Clinger of Tidioute, and William Floyd Clinger of Conewango Avenue, Warren. They have operated in the Tidioute Field for some years and during the Tidioute excitement owned one of the biggest gushers struck in the field. They own a number of leases in that vicinity and by their new acquisitions become one of the biggest operating concerns in this section.

Judgment Given for Excess Income Tax To Pure Oil Owner

PITTSBURGH, Pa., Jan. 16.—Judge W. H. S. Thomson, in United States District Court, ordered that judgment against the United States be entered for B. D. Phillips, of Butler, for $23,452.85 with interest from July 26, 1917, excessive income tax levied on Phillips by C. G. Lewellyn, former internal revenue collector.

The case was understood to be a test suit involving claims against the Government of more than $5,000,000 in taxes collected during 1917 from owners of Pure Oil Co. stock.

The assessment was on the claim of additional profits on the sale of 9,200 shares of Pure Oil stock made by Phillips to the Ohio State Gas Co., in 1917, when stockholders of the Pure Oil Co. sold their interests to the Ohio company.

The value of the stock on March 1, 1913, was alleged by the Government to be $15.25, based on the price paid for some of the stock in 1913 on the Pittsburgh exchange, while Phillips in his tax return placed a value of $22.50 per share on the stock owned by him. Phillips sold his stock to the Ohio company in 1917 at $24.50 a share and in his income tax return for that year reported a profit of $2 per share. The commissioner of internal revenue, however, basing the 1913 value of the stock at $15.25 per share declared the taxable gain made by Phillips to have been $9.25 per share.

Judge Thomson held that sales of the stock on the Pittsburgh Stock Exchange were an inadequate gauge of the fair market value and found that the fair market value on March 1, 1913, was $22.50 per share, as contended by Phillips, making the taxable gain $2 per share. The case was argued during the November term of Federal court. James Walton argued the case for Phillips, while associate attorneys were Frank B. Ingersoll of Pittsburgh and E. C. Breene and W. M. Parker of Oil City. The Government was represented by Assistant U. S. Attorney W. J. Aiken, assisted by L. L. Hight, special Federal attorney.

The opinion says that evidence shows that independent oil operators of western Pennsylvania had for a long time suffered from monopolistic domination, which interfered with and restricted means of disposing of their oil as they desired.

Among those who took the stand were C. L. Suhr, president of the Pennzoil Oil Co. of Oil City; N. H. Weber, vice president of the Pure Oil Co., Columbus, Ohio; B. Preston Schoyer, president of the Pittsburgh Stock Exchange; George W. Radcliffe, official of the Ohio Fuel Corp., and John L. Porter, vice president of the Colonial Trust Co.

INCREASE IN OIL BURNERS

The Underwriters Laboratories of Chicago announces that at the close of 1925 there were 40 burners of all types listed as standard. This is about three times as many as were so listed at the end of the preceding year. The department devoted to oil burners now has four engineers and two laboratory assistants who devote their full time to testing equipment of oil burners and oil burning devices. They report a general improvement in the matter of safety from fire hazard and control of the flow of oil.

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Detailed Operations in All Fields for Month of December

SUMMARY OF ALL FIELDS

Fields—	Comp.	Prod.	Dry	Gas
Eastern	363	2,426	37	85
Lima	44	616	4	1
Indiana	11	76	4	0
Central Ohio	32	188	5	20
Kentucky	159	1,254	39	8
Tennessee	10	2,511	5	0
Mississippi	1	0	1	0
Illinois	20	1,919	7	0
Kansas	105	7,959	35	7
Oklahoma	380	68,858	140	53
North Texas	296	27,130	111	15
E. Cent. Texas	16	290	10	2
N. Louisiana-Ark.	105	6,742	26	12
Gulf Coast	86	23,824	35	1
Southwest Texas	66	5,856	12	7
Wyoming	54	12,881	9	1
Montana	39	2,331	14	0
Utah	1	400	0	0
Colorado	4	2,000	2	1
New Mexico	28	2,350	4	0
Total Dec.	1,805	169,605	500	213
Total Nov.	1,890	195,232	561	232
Difference	94	25,627	64	19

Rigs and Wells Drilling

Fields—	Rigs	Drg.	Ttl.
Eastern	113	434	547
Lima	8	34	42
Indiana	2	38	40
Central Ohio	17	66	83
Kentucky	10	225	235
Tennessee	1	15	16
Mississippi	3	10	13
Alabama	0	6	6
Georgia	1	4	5
Illinois	3	49	52
Kansas	69	380	449
Oklahoma	216	1,022	1,238
North Texas	78	443	521
E. Cent. Texas	6	25	31
N. Louisiana-Ark.	77	287	364
Gulf Coast	40	147	187
Southwest Texas	33	92	125
Wyoming	36	265	301
Montana	15	141	156
Utah	2	31	33
Colorado	19	99	118
New Mexico	5	140	145
Total Dec. 31	754	3,953	4,707
Total Nov. 30	807	3,873	4,685
Difference	53	75	22

Note—In the following report the Section, Township and Range are given first; then the farm, the owner, the serial number of the well and the initial production of the well. The rigs and wells drilling are set forth in similar manner. In lines where the Section, Township and Range are missing the wells are located in the Sections, Townships and Ranges which appear next above in the report.

OKLAHOMA FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Osage	39	2,267	7	4
Tulsa	13	17	8	3
Okmulgee	53	3,224	23	6
Seminole	7	122	5	0
Okfuskee	21	193	9	6
Hughes	14	2,212	6	2
Muskogee and Wagoner	16	30	10	4
Creek	48	1,448	13	0
Pawnee	12	1,515	6	0
Kay	24	1,983	17	1
Payne	6	1,670	1	2
Lincoln	25	9,859	2	0
Garfield	19	39,481	3	0
Stephens and Cotton	25	617	11	5
Carter	14	800	3	0
Jefferson	13	3,100	3	0
Miscellaneous	31	320	13	10
Total Dec.	380	68,858	140	53
Total Nov.	345	81,874	134	33
Difference	35	13,016	6	20

Summary of Rigs and Wells Drilling

County—	Rigs	Drg.	Ttl.
Osage	11	61	72
Tulsa	6	26	32
Okmulgee	24	82	106
Seminole	6	47	53
Okfuskee	14	50	64
Hughes	10	60	70
Muskogee and Wagoner	4	12	17
Creek	37	85	122
Pawnee	10	55	65
Kay	11	117	128
Payne	8	44	52
Lincoln	18	69	87
Garfield	9	63	72
Grant	3	12	15
Noble	1	24	25
Grady	4	22	26
Stephens and Cotton	11	44	55
Pontotoc and Garvin	2	22	24
Carter	8	40	48
Jefferson	2	17	19
Miscellaneous	17	69	86
Total Dec.	216	1,022	1,238
Total Nov.	222	1,031	1,253
Difference	6	9	15

OSAGE COUNTY

20-29-9e	Winona Oil 4	35
22-29-11	Winona Oil 11	8
16-28-12	Superior Oil 1	dry
3-21-9e	Skelly-Moore et al 4	gas
18-21-10	Knupp & Bozo Oil 4	12
32-21-10	Roxana Pet. 1	dry
26-21-11	Devonian Oil 8	dry
14-29-8e	Western American Oil 1	dry
15-27-10	Barnsdall Oil 5	25
5-25-12	45 Oil Co. 39	25
33-22-11	Branstetter et al 1	5
20-22-12	Winona Oil 1	dry
18-21-12	Kewanee Oil 7	10
20-21-12	Elliott & Smith 20	35
35-28-10	Owen Osage Oil 354	gas
21-26-6e	Lewis Oil 15	92
26-26-8e	Petroleum Drilling 14	dry
34-25-11	Devonian Oil 11	8
15-24-8e	McCune et al 4	dry
1-24-11	Barnsdall Oil 4	10
20-23-10	Superior Oil 3	5
33-22-10	Tidal Osage Oil 23	15
14-21-10	Oklahoma Nat. Gas. 700	gas
7-21-11	Titus & Norris 2	370
5-20-11	Pioneer Pet. 4	20
28-20-12	Continental Oil 12	120
14-29-10	I. T. I. Oil 3	30
	I. T. I. Oil 17	15
3-28-5e	Geo. Boles 1	dry
2-27-5e	Phillips Pet. 12	1250
8-27-11	Owen Osage Oil 355	dry
12-25-5e	R. W. Ryan Drilling Co. 1	40
9-25-8e	Oliphant et al 1	dry
34-25-11	I. T. I. Oil 337	gas
18-22-9e	Meridian Pet. 7	40
11-21-10	Tidal Osage Oil 3	65
28-21-10	Titus & Norris 1	2
8-21-11	Titus & Norris 1	dry
16-21-12	Commercial Drilling Co. 6	30
	Wells completed	39
	Production	2267
	Dry	7
	Gas	4
	Gas production	4,750,000

TULSA COUNTY

14-19-10	Robinson, Gleddon, Holmes & Skelly 1	dry
36-19-11	Wicey, Regal Oil 1-A	12
9-19-12	Unallotted, John King 1	gas
33-18-14	Strip, Elliott et al 2	dry
36-18-14	Moore, Helso et al 8	5
25-17-12	Keefer, The Texas Co. 3	gas
13-19-11	London, Sand Spgs. Home Oil 3	dry
28-19-11	Holden, E. R. Minshall 2	dry
2-16-12	Walker, W. C. Newman 16	dry
3-19-11	Sand Springs Home Oil 1	gas
11-16-13	Willis, Campbell et al 1-A	dry
2-19-10	Grayson, Gleddon Oil 3	dry
15-16-12	Jones, Sheridan Oil 1	dry
	Wells completed	13
	Production	17
	Dry	8
	Gas	3
	Gas production	10,500,000

OKMULGEE COUNTY

27-16-12	Haskins, Independent O. & G. 13	gas
23-15-11	Bruner, Ile Bean et al 1	15
8-15-12	Harjo, Iron Mtn. Oil 1	dry
14-15-12	Hogan, Olean Pet. 9	gas
26-15-12	Lee, W. E. Hammond 4	gas
28-13-11	Sands, Laurel O. & G. 1	dry
5-11-12	Jackson, C. O. Buckles 1	15
16-11-12	Grayson, H. & M. Oil 5	30
19-12-14	Batts, Sands Pet. 1	dry
18-15-13	Doyle, W. B. Pine 3	300
10-15-14	Bells, C. C. Odell 1	dry
30-16-11	Tiger, Sheridan Oil 1	dry
29-16-12	Foley, Chief Drlg. Co. et al 1	dry
27-16-13	Mingo, Prince et al 6	gas
35-16-13	Wicey, Edwards et al 12	dry
14-15-11	Rogers, Waite Phillips 6	dry
	Rhodes, Waite Phillips 3	35
4-15-12	Kible, McCarthy et al 1	dry
10-15-12	Bighead, T. A. Johnson 3	60
9-18-11	Smith, Gowland et al 1	dry
7-12-12	Wilson, Morton & Co. 3	335
17-11-12	Seaborn, W. B. Pine 4	gas
14-11-13	McIntosh, Nicholson Corp. 1	12
36-12-13	Bruner, Pulaski Oil 8	375
15-13-14	Scott, Utah Oil 1	400
29-13-14	Wiley, F. E. Cuseck 1-A	dry
33-13-14	Gambler, E. J. Lambert 2	dry
8-13-15	Eich, E. J. Lambert 5	dry
18-15-13	Doyle, W. B. Pine 5	400
21-15-13	Kelly, J. L. Kirkland 2	dry
10-15-14	Carter, Turman Oil 3	15
25-13-11	Tobler, Prairie O. & G. 13	12
28-16-12	Willis, Sheridan Oil 3	dry
4-15-11	Gibson, Nowata O. & R. 2	25
18-15-12	Coussens, Sam Bright 1-A	dry
	Bright, The Texas Co. 1	dry
5-12-13	Muckens, Clay et al 3	5
12-13-13	Gray, Mid-Cont. Pet. 14	50
2-13-14	Tucker, A. G. Hazlett 1	gas
13-13-14	Thornsberry, Iron Mtn. Oil 6	dry
20-15-14	Lewis, The Texas Co. 18	50
17-15-11	Gibson, Shaffer O. & R. 6	dry
1-15-12	Rowe, Phillips Pet. 6	20
4-11-12	Hawkins, Weir et al 2	10
1-11-13	Blackwell, Pulaski Oil 7	285
36-12-13	Bruner, Pulaski Oil 9	300
25-13-14	Doneghy, W. R. Somerville 2-A	dry
14-14-14	Colbert, T. B. Slick 1	30
22-14-14	Wright, Dunn Drlg. Co. 11	dry
7-15-13	Wisner, Devonian Oil Co.	250
18-15-13	Doyle, W. B. Pine 4	200
19-15-13	Depriest, G. D. Terrien 1	dry
35-15-13	Morrison, Southwestern Oil Fields 5	dry
	Wells completed	53
	Production	3224
	Dry	23
	Gas	6
	Gas production	56,000,000

SEMINOLE COUNTY

31-8n-8e	Sa'nds, W. R. Ramsey 1	dry
28-11-8e	Williams, Waite Phillips 1	102
20-8n-8e	Brown, Homaokla Oil 1	dry
32-8n-8e	Fee, Magnolia Pet. 3	dry
26-7n-7e	Fore, Dixie Oil 1	dry
3-10-8e	Owens, Prairie O. & G. 5	20
33-8n-8e	Long, Lewis & Clark 2-A	dry
	Wells completed	7
	Production	122
	Dry	5

OKFUSKEE COUNTY

15-12-11	Gardner, J. W. Moore et al 1	20
34-12-11	Deer, G. & M. Oil 1	dry
25-11-10	Chief, Atlantic O. P. 1	dry
13-11-11	Jefferson, Waite Phillips 2	25
19-11-11	Barnett, Riverland Oil 1-A	gas
22-11-11	Grayson, Windsor Oil 4	90
13-12-11	Harjo, Amerada Pet. 9	18
14-12-11	Larney, Independent O. & G. 1	dry
	Larney, Betty Ann Oil 1	dry
2-11-11	Watson, Tidal Oil 1	dry
33-11-11	Holmes, Windsor Oil 4	gas
33-10-9e	Barnett, Jennings et al 8	5
36-10-9e	Dacon, Amerada Pet. 1	gas
14-12-8e	Billy, Western States Oil 1	dry
15-12-11	Henry, Windsor & Margay Oil 2	35
35-11-9e	Wind, Gilcrease Oil 1	gas
33-10-11	Cubbie, Tidal Osage Oil 2	dry
25-11-9e	Yarhola, Eagle Picher Oil 1	gas
	Foster, Independent O. & G.	dry
		gas
2-11-11	Smith, Tidal Oil 1	dry
20-11-11	Jackson, Kingwood Oil 1	dry
	Wells completed	21
	Production	193
	Dry	9
	Gas	6
	Gas production	53,500,000

HUGHES COUNTY

1-9n-8e	Cain, Minnehoma Oil 2	596
3-9n-9e	Arbor, Phillips Pet. 8	30
26-9n-9e	Harjo, Transcontinental Oil & Fuhrman 1	1200
23-9n-10	Cuney, Farmac-Yarnell Drilling Co. 1	dry
4-9n-11	Harjo, Mid-Kansas Oil 3	dry
31-8n-12	Barnett, W. C. Newman 2	dry
1-9n-9e	Anderson, Atlantic & Bass 2	15
28-9n-10	Canard, P. & R. Corp. 1	gas
32-8n-10	Vorhees, Gypsy Oil 1	dry
19-8n-10	Alexander, Carter Oil 3	gas
1-9n-8e	Cain, Waite Phillips 2	150
18-8n-10	Morrison, Independent O. & G. 3	dry
	Alexander, Independent and Gladys Belle 2	dry
1-9n-9e	Anderson, I. T. I. Oil 6	221
	Wells completed	14
	Production	2212
	Dry	6
	Gas	2
	Gas production	27,500,000

MUSKOGEE AND WAGONER COUNTIES

1-12-17	Fulsom, C. E. Travis 1	dry
2-17-16	McIntosh, Myers 15	dry
25-17-17	Kidd, C. M. Bradley 1	dry
32-18-16	Woodward, P. Boyle 1	10
14-13-18	Jordan, Herbert 1	gas
34-14-16	Roberson, Blakely 2	dry
32-16-15	McDaniel, G. A. Simon 1	dry
14-17-16	Atkins, C. L. McMahon 3	20
19-17-16	Bruner, Neal & Cartwright 1	dry
15-16-15	Young, G. S. Wilson 3	dry
2-16-16	Bruner, Mitchell 1	gas
4-16-17	Marshall, Harding & Uhrey 1	dry
2-16-16	Smith, Mitchell 3	gas
36-16-17	Brown, Hale & Greer 2	gas
35-18-15	McKellop, A. E. Carder 3	dry
28-18-16	Grayson, Knox & Shouse 1	dry
	Wells completed	16
	Production	30
	Dry	10
	Gas	4
	Gas production	22,473,000

CREEK COUNTY

13-19-8e	Louie, J. B. Grieves 5	25
14-19-8e	Hinton, Gled Oil 3	4
14-17-8e	Fry, Alvard & West, 2	50
24-17-8e	Harjo, Waite Phillips 2	dry
12-14-8e	Ponds, Haskell Oil 3	175
12-14-8e	McKann, Skelly Oil 9	50
5-17-11	McDougal, W. J. Cole 1	dry
1-16-11	Anthis, Wilcox & Oswalt 6	60
20-14-10	Stuart, Chas. F. Noble 6	100
11-19-8e	Miller, H. U. Bartlett et al 1	dry
14-19-8e	Miller, Gled Oil 1	gas
36-15-7e	Big Pond, Henry & Karcher 1	8
34-15-8e	Sewell, C. G. Tibbens 2	15
12-14-8e	McKann, Skelly Oil 8	75
13-14-8e	Sarty, Phillips Pet. 2	5
28-18-11	Stidman, Skelly Oil 1	dry
6-18-12	Gray, Gypsy Oil 2	dry
	Gray, Gypsy Oil 14	120
17-14-10	Johnson, Quinlan et al 1	dry
18-14-10	Harjo, Southwestern Oil 4	175
	Unallotted, P. & R. Corp. 1	125
20-14-10	Knight, Hall & Donnelly 1	9
5-16-8e	Emarthla, Magnolia Pet. 1	gas
13-14-8e	Sewell, C. G. Tibbens 9	30
7-18-9e	Maloney, Billingslea 2	gas
33-13-11	Sapulpa, J. Livingston 1	8
12-18-12	Morrison, O. N. West et al 4	gas
23-17-10	Kochaney, J. H. Wright 2	15
24-17-10	Tahkaney, J. H. Wright 4	30
30-15-9e	Unallotted, C. G. Tibbens 19	265
13-14-8e	Sarty, Phillips Pet. 3	dry
4-19-9e	Hall, Sand Springs Home Oil 1	dry
5-17-12	Crow, Jackson & Wise 14	dry
20-16-9e	Cobb, Penrod & Thompson 3	dry
13-17-8e	Smith "B" Prairie O. & G. 1	gas
30-15-9e	Winters, T. S. Coryell et al 1	15
20-16-8e	Kanard, Waite Phillips 1	dry
3-15-7e	Rogers, Atlantic O. P. 2	dry
25-15-7e	Charles, Lima O. & G. 1	gas
30-15-8e	Benjamin, Empire G. & F. 2	gas
7-14-7e	Hood, Roxana Pet. 3	10
3-18-11	Tahmlodge, Terrell O. & G. 1	20
26-18-11	Pahcahney, Riverland Oil 1	gas
19-17-10	Jacinta, Amerada Pet. 1	gas
16-16-9e	Unallotted, C. H. Stokes 1	25
27-15-10	Douglas, Simmons & McGeehan 1	dry
20-14-10	Kimble & Reading, Wilcox O. & G. 6	75
21-14-10	Scott, E. L. Kistler 4	gas
	Wells completed	48
	Production	1448
	Dry	13
	Gas	10
	Gas production	96,500,000

PAWNEE COUNTY

8-20-8e	Aten, Adamson & Sun Ray Oil 2	150
25-22-6e	Bell, Victor Oil 1	dry
16-20-7e	School land, Mid-Cont. Pet. 14	40
23-20-8e	Van Eman, Selby O. & G. 2	75
24-20-8e	Hennessey, McMahan Oil 4	50
35-21-8e	Norman, Gypsy Oil 11	400
	Norman, Gypsy Oil 13	800
4-23-5e	Bahlman, Mid-Kansas O. & G. 1	dry
22-22-6e	Tracey, New England O. & P. L. 1	dry
31-21-8e	———, Bryan Bros. 1-A	dry
35-20-7e	McMuttrie, Chas. H. Burton 1	dry
1-20-7e	Mullendore, Selby & Gypsy 2	dry
	Wells completed	12
	Production	1515
	Dry	6

KAY COUNTY

15-25-2w	Herbig, Selby O. & G. 1	dry
21-25-2w	Turk, Marland Oil 1	dry
27-25-2w	Simmons, W. E. Brown Oil 1	dry
33-25-1w	School land, Cosden & Marland 9	431
1-28-23e	Cortez Oil 1	dry
8-27-1w	Harris, Polling & Denny 2	gas
1-26-2w	Richmond, Marland & Amerada Pet. 3	30
15-25-2w	Thomas, Carter Oil 3	712
5-28-1w	Jones, E. V. Shawver 1	dry
8-28-1w	Townsite, Herbert Oil 1	dry
	Townsite, Meade Bros. 1	dry
	Townsite, Stanley & Jones 1	dry
12-26-2w	North, Marland Oil 2	dry
15-25-2w	Herbig, Gypsy Oil 1	dry
	Herbig, Gypsy Oil 2	dry
	Herbig, Gypsy Oil 3	dry
22-25-2w	Siler, Twin State Oil 3	dry
	Siler, Twin State Oil 6	dry
21-28-4e	A. D. Morton 1	dry
1-26-2w	Smith "A," Prairie O. & G. 2	70
21-29-1w	Duncan, Comar Oil 5	700
9-25-2w	Chambers, Gypsy Oil 1	40
15-25-2w	Hallman, Comar Oil 1	dry
	Hallman, Comar Oil 2	dry
	Wells completed	24
	Production	1983
	Dry	17
	Gas	1
	Gas Production	40,000,000

PAYNE COUNTY

1-18-5e	Laughlin, Home Gas Co. 4	gas
35-19-5e	Laughlin, Josey Oil 2	gas
24-19-4e	Pleasants, Olean Pet. 1	1250
23-18-3e	Goodno, Deep Rock O. & G. 2	235
	Ostrander, Pure Oil 1	185
30-18-5e	Driggs, Willis O. & G. 2	dry
	Wells completed	6
	Production	1670
	Dry	1
	Gas	2
	Gas production	6,500,000

LINCOLN COUNTY

5-15-6e	Howard, Independent O. & G. 1	dry
2-14-5e	Hopkins, Skelly Oil 2	1020
	Bigwater, Twin State Oil 7	410
	Bigwater, Twin State Oil 8	482
	Tuttle, Carter Oil 2	212
	Sukovaty, A., Magnolia Pet. 7	1100
26-12-2e	Dodrill, Eugene Costa et al 2	dry
2-14-5e	Sukovaty, A., Magnolia Pet. 9	658
3-14-5e	Bagwell, Selby & Southwestern Pet. 9	350
10-14-5e	Nickel, Shaffer O. & R. 1	42
35-15-5e	Jefferson, Pure Oil 3	507
	Jefferson, Pure Oil 4	220
7-15-6e	Ford, Skelly Oil 2	750
	Spurgeon, Gypsy Oil 1	14
3-14-5e	Sukovaty, Magnolia Pet. 5	140
	Sukovaty, Magnolia Pet. 7	220
	Sukovaty, Magnolia Pet. 8	150
35-15-5e	Sporleder, Prairie O. & G. 1	162
3-14-5e	Stout, Prairie O. & G. 14	1100
34-15-5e	M. & F. Sporleder, Magnolia Pet. 6	30
	Caves, Gypsy Oil 2	400
2-14-5e	Tuttle, Carter Oil 3	207
	Sukovaty, Magnolia Pet. 6	430
	Sukovaty, Magnolia Pet. 10	900
11-14-5e	Caves, Gypsy Oil 2	855
	Wells completed	25
	Production	9859
	Dry	2

GARFIELD COUNTY

13-22-4w	Wolfe, Roxana Pet. 2-W	2839
	School land, Cosden & Marland 58	480
25-22-4w	Frickenschmidt, Sinclair Oil 11	dry
18-22-3w	Schroeder, Roxana Pet. 4-W	3300
	Schroeder, Roxana Pet. 6-W	8600
	Schroeder, Roxana Pet. 7-W	2600
	Schroeder, Roxana Pet. 8-W	4000
13-22-4w	School land, Cosden & Marland 55	800
	Walker (North) Sinclair Oil 27	2700
24-22-4w	Dively, Carter Oil 44	312
12-22-4w	Wishard, Prairie O. & G. 6	100
13-22-4w	School land, Cosden & Marland 61	600
24-22-4w	Belveal, Healdton Pet. 31	85
25-22-4w	Hoy, Sinclair Oil 21	100
18-22-3w	Schroeder, Roxana Pet. 9-W	1685
19-22-3w	Kisner, (East), Sinclair Oil 3	dry
24-22-4w	Dively, Carter Oil 52	dry
18-22-3w	Shaffer, Sinclair Oil 10	160
	Hartley, Sinclair Oil 20	7520
	Wells completed	19
	Production	39481
	Dry	3

STEPHENS AND COTTON COUNTIES

27-1s-8w	Taliaferro, Big Twelve Oil 2	dry
	Taliaferro, Big Twelve Oil 3	gas
32-1s-8w	Smith, Crump & Beard 12	dry
	Smith, Crump & Beard 13	10
12-2s-8w	Fobb, Commercial Pet. 2-B	25
13-2s-8w	———, Dierkee & Coats 1	dry
12-2n-5w	Prince, Knox Pet. 1	dry
26-1n-9w	Brown, Eagle Creek Oil 5	gas
32-1s-8w	Shelton, Crump & Beard 6	dry
	Story, Empire G. & F. 4	dry
33-1s-8w	School land, Magnolia Pet. 19	22
34-1s-8w	Kagay, Magnolia Pet. 15	gas
12-2s-8w	Fobb, Commercial Pet. 5-A	50
	Fobb, Commercial Pet. 3-B	200
	Fobb, Commercial Pet. 4-B	200
26-2n-9w	Richardson, Flowers et al 1-A	gas
2-2n-5w	Goza, Paulin. et al 1	8
11-2n-5w	Isherwood, Rogers et al 1	dry
35-1n-9w	Hines, Ka Wya Drlg. Co. 7	dry
	Hines, Ka Wye & Roxana Pet. 1	dry
2-1n-5w	Payne, Shaffer & Mangan 1-A	12
28-1s-8w	Springer, Winkler et al 2	90
33-1s-8w	Potts, Lorraine Pet. 3	dry

33-1s-8w Stephens, McMann Oil 4..... gas
12-2s-8w Fobb, Commercial Pet. 6-A.. dry

Wells completed 25
Production 617
Dry 11
Gas 5
Gas production.....16,050,000

CARTER COUNTY

23-2s-3w Lohman, Magnolia Pet. 5.... 40
24-2s-3w Smith, Magnolia 9-A 120
Walker-Vorhees, Cameron Ref. 6 90
8-3s-2w Mullen, Coline Oil 3..... 100
21-5s-1e Fee, Westheimer 5 ..... dry
23-2s-3w Lohman, Magnolia Pet. 8.... 150
2-3s-3w Potter, Amerada Pet. 1..... dry
28-5s-1e Clay, Amerada Pet. 19..... 10
24-2s-3w Walker-Vorhees, Cameron Ref. 5 50
28-5s-1e Baptiste, Amerada Pet. 5.... dry
23-2s-3w Williams, Magnolia Pet. 5.. 10
7-2s-2w Pierce, Lively & Tucker 1.. 150
8-2s-2w Pierce, Carter Oil 1..... 30
8-3s-2w Moyer, Merrick-Cameron 6.. 50

Wells completed 14
Production 800
Dry 3

JEFFERSON COUNTY

34-6s-5w Indian, Humble-Hambro Oil 5 60
33-6s-5w Seay, Gypsy Oil 5..... 240
Seay, Gypsy Oil 5..... 50
Seay, Carter Oil 1.....2000
18-6s-5w Grayson, Seaboard Oil 1..... dry
33-6s-5w Seay, Hambro-Humble Oil 4 110
Seay, Gypsy Oil 6..... 120
Seay, Gypsy Oil 2..... 200
29-6s-4w Reid, Mid-Cont. Pet. 1..... dry
4-7s-5w Seay, Couche et al 1..... dry
33-6s-5w Seay, Hambro-Humble Oil 5 200
Seay, Gypsy Oil 4..... 20
Seay, Gypsy Oil 7..... 100

Wells completed 13
Production 3100
Dry 3

MISCELLANEOUS COUNTIES

Noble County—

21-21-2w Wooleson, Magnolia Pet. and Bu-Vi-Bar Pet. 1..... gas
22-21-2w Young, Magnolia and Bu-Vi-Bar Pet. 1 ..... gas

Pontotoc County—

6-3n-3e Albertson, Lloyd & Smith 3.. 30
26-5n-8e Harjo, Dixie Oil 1..... dry
33-5n-8e Shields, Homaokla Oil 1.... dry

Garvin County—

16-1n-3w Butts, T. P. C. & O. Co. 2 150
17-1n-3w Deryden, Hope & Wilson 1.. 40
8-1n-3w Deryden, Magnolia Pet. 2... dry
16-1n-3w Parnell, T. P. C. & O. Co. 2 dry

Beckham County—

6-9n-24w Burkholder, J. A. Pringle & Lewis 1 ..... dry

Grady County—

27-3n-5w Pounds, Joe Ray 1..... dry
11-4n-8w Rockhold, Magnolia Pet. 1-B gas
23-5n-8w Sanford, Stogner et al 3.... gas
35-5n-8w McCaughtry, Kipp et al 1-A gas
Deryden, J. B. Nicholas 1.... dry
5-3n-5w Gardenhire, Carter Oil 1.... 25
14-5n-8w Moore, Briscoe & Hall 1.... gas
23-5n-8w Farwell, Magnolia Pet. 3.... gas
24-5n-8w Farwell, Briscoe & Hall 1.... gas

Comanche County—

24-2n-10w Cox, Cherry & Couch 1-A.... 10
3-3n-10w Hallum, Becker et al 1.... 22
30-2n -9w Price, Magnolia Pet. 3..... 3
Indian, Continental Oil 1.... 40

Pittsburg County—

24-7n-13 Brown, J. J. Deaner 1..... dry

McIntosh County—

17-10-14 Lynch, Gypsy Oil 1..... gas
29-11-17 Scott, Western O. & G. 1... gas

Haskell County—

27-9n-18e Curry, E. D. Clark 1..... dry

Marshall County—

23-7s-5e Haddock, Ramsey Bros. 1.. dry
25-5s-5e Arbuckle, Lane & Watson 1.. dry

Noble County—

2-24-1w Blu augh "A," Comar Oil 24-W ..... dry

Love County—

13-8s-2e Crowe, Magnolia Pet. 1..... dry

Wells completed 31
Production 320
Dry 13
Gas 10
Gas production 165,000,000

OSAGE COUNTY

Rigs

14-29-10 J. A. Kennedy 1.
22-28-10 Owen Osage Oil 357.
2-28-11 I. T. I. Oil 1.
2-27-5e Phillips Pet. 15, 16.
8-27-11 Owen Osage Oil 358.
29-25-8e Lewis Oil 6.
6-24-8e Osage Oil 1.
15-24-8e Marland Oil 4.
2-21-10 Oklahoma Natural Gas 707.
7-26-8e John L. Bird 1.

Wells Drilling

18-29-6e Lewis Oil 1.
15-29-10 I. T. I. Oil 16.
A. G. Oliphant 1, 2.
35-29-10 L. C. Duffield 16.
28-28-11 Duffield & Howard 1.
33-28-11 Owen Osage Oil 356.
2-27-5e Phillips Pet. 7.
Skelly Oil 5.
26-27-5e Skelly Oil 5.
8-27-6e P. & R. and Comar Oil 2, 3.
Phillips Pet. 1.
17-27-6e Phillips-Peters 2.
Peters-Oliphant 3.
29-27-6e Phillips Pet. 13.
9-26-6e Carter Oil 8.
16-26-6e Carter Oil 15.
17-26-6e Seamans et al 1.
36-25-6e I. T. I. Oil 1.
5-25-8e Continental Oil 1.
19-25-8e Wrightsman et al 1.
29-25-8e The Texas Co. 5.
28-25-9e Phillips Pet. 1.
12-24-8e Atlantic O. P. 1.
35-24-8e Tidal Osage Oil 13.
29-24-8e Continental Oil 3.
32-24-9e Peters Pet. 3.
28-24-10 Winona Oil 18.
1-24-11 Teeles et al 2.
22-23-7e Blackstone Oil 2.
20-23-10 Delmar Oil 1.
14-22-10 Osage Arrow Oil 19.
1-21-8e I. T. I. Oil 8.
2-21-8e Skelly & Moore 6.
6-21-9e D. B. Flisht 1.
11-21-9e Moore et al 5.
30-21-9e Barnsdall Oil 21.
10-21-10 Devonian Oil 4.
11-21-10 Mid-Kansas Oil 4.
19-21-10 Sand Springs Home 89.
Swoverland et al 2.
23-21-10 Breene et al 15.
30-21-10 Devonian Oil 1.
19-21-11 Tidal Oil 22.
13-20-10 L. C. Hivick 1.
28-20-10 Breene & Holm 1.
33-20-10 Hivick & O'Reilley 1.
5-20-11 Calvin & Belt 6.
29-20-11 Superior Oil 1.
30-20-11 Sand Springs Home 1.
20-20-12 Devonian & Elliott 9.
29-20-12 Winona Oil 2.
21-25-6e The Prairie O. & G. 1.

Shut Down

26-29-11 L. C. Hivick 1.
1-26-7e Morton et al 1.
* 1-26-9e Ike Johnson 1.
1-26-11 Mid-Kansas Oil 1.
28-24-8e Axelrod et al 2.
32-24-9e Peters Pet. 6.
33-22-12 Knupp et al 1.
Rigs, 11; wells drilling, 61; total, 72.

TULSA COUNTY

Rigs

22-19-10 Henry, Holmes et al 1.
7-18-13 Strip, Posey Short 1.
24-18-13 Chrisholm, Green et al 1.
5-17-14 Hodge, Albon Oil 1.
9-16-12 Simopke, Suppees et al 1.
16-18-13 Parkins, Hutchinson O. & G. 1-A.

Wells Drilling

4-19-10 Unallotted, O'Reilly et al 3.
10-19-10 White, Crown Central Pet. 1.
14-19-10 Robinson, Holmes et al 3.
3-19-11 Page, Sand Springs Home 1.
13-19-11 London, Sand Springs Home 4.
17-19-11 Grayson, Pennok Oil 7.
22-19-11 Baughman, Holmes et al 1.
34-19-11 Inchoe, Sheridan Oil 1.
30-19-12 Bodrey, Nowata O. & R. 3.
34-19-12 Mackey, Suppees et al 1-A.
6-18-13 Davis, Henderson et al 1.
28-18-13 Cheney, Wilson et al 1-A.
36-18-13 Morrison, Pettit et al 1.
36-17-12 Murray, Henry Oil 2.
1-17-14 McHenry, Frates Oil 4.
3-16-12 Sanderson, S. W. Anthony 2.
13-16-12 Unallotted, Winemiller et al 1.
14-16-13 Fox, Holmes et al 1.
16-16-13 Pemberton, Independent O. & G. 1.

Shut Down

15-19-11 Fife, Minshall et al 2.
28-19-11 Fulsom, P. W. Fusselman 1.
4-19-14 Grayson, S. L. Johnson 1.
9-18-13 Strip, Elliott et al 1.
18-18-14 Burgess, Edwards et al 1.
24-17-13 Tingle, Craig et al 2.
27-17-14 Slinton, Sparks et al 1.
Rigs, 6; wells drilling, 26; total, 32.

OKMULGEE COUNTY

Rigs

28-16-12 Willis, Sheridan Oil 5.
35-16-12 Staley, W. B. Pine 2.
3-15-11 Sallee, Sheridan Oil 1.
9-15-12 Forty Four, Carter Oil 1.
12-15-12 Gay, Western Central Oil 1.
19-15-12 Naylor, G. & M. Oil 1.
35-15-12 Strip, Hammond et al 1.
36-14-12 Haynes, Kingwood Oil 1-A.
3-13-11 Anderson, Vincent et al 1.
25-13-11 Lewis, J. A. Swindler & Sons 5.
31-13-12 Marton, L. C. Wheeler et al 1-A.
3-12-12 Tiger, Vierson & Walters 3.
17-11-12 Summers, Decius et al 1.
12-13-13 Daniel, Mid-Continent Pet. 7.
15-13-13 Doyle, C. H. Lebow 10.
Scott, Roxana Pet. 4, 5.
16-13-13 Morton, J. H. Rebold 3.
9-14-13 Fixico, J. K. Gardner 1.
7-15-13 Field, Devonian Oil 7.
Wisner, Devonian Oil 12.
18-15-13 Doyle, W. B. Pine 7.
31-15-13 Sneed, G. D. Terrien 1.
20-15-14 Lewis, J. A. Swindler 10.

Wells Drilling

19-16-12 Bruner, Sheldon et al 1-A.
24-16-12 Tiger, Oklahoma Nat. Gas 4, 12.
29-16-12 Kennedy, Reno Oil 1.
19-16-13 Korndorfer, Turner et al 1-A.
Grant, Leonard Pet. 2.
31-16-13 Hawkins, Holmes et al 1.
23-16-14 Davis, Gilliland Oil 1.
24-16-14 Lowery, E. J. Lambert 1.
1-15-11 McWilliams, Santuna Oil 4.
4-15-11 Gibson, Iron Mtn. Oil 3.
14-15-12 Hogan, Olean Pet. 10.
15-15-12 Kennedy, Rooch, Love et al 1.
20-15-12 Adams, D. D. Mickelson 7.
22-15-12 Brown, Phillips Pet. 1.
32-15-12 Arch, Noble O. & G. 1.
35-15-12 Claunch, Vierson O & G. 1.
12-14-11 Biggerstaff, Simmons et al 8.
12-14-12 Warren, Abbott & Dillard 1.
22-14-12 Havercamp, T. A. Johnson 2.
25-13-11 Lewis, J. A. Swindler & Sons 4.
32-13-11 Thomas, Denver P. & R. 5.
8-13-12 Morton, H. C. Marcey et al 4.
32-13-12 Morton, Hally Oil 2.
4-12-12 Tiger, Magnolia Pet. 1.
7-12-12 Wilson, Independent O. & G. 2, 3.
Wilson, Morton & Co. 4, 5.
18-12-12 Clark, M. F. Maroney 1.
20-12-12 Newhouse, Continental Oil 3.
31-12-12 Rentie, Tribes Oil 4.
33-12-12 Been, Wooster Oil 7.
7-11-12 Holmes, Moffitt et al 3.
17-11-12 Summers, M. C. French 1.
9-11-12 Sullivan, Empire G. & F. 9.
1-11-13 Thomas, Magnolia Pet. 10.
Thompson, Magnolia Pet. 6.
Blackwell, Pulaski Oil 8.
Coody, W. R. Sturdevant 1.
Blackwell, Tidal Oil 7.
14-11-13 Davis, Nicholson 1.
14-13-14 Foshee, J. K. Gardner 4.
11-13-14 Tucker, A. G. Hazlett 6.
15-13-14 Doyle, J. J. Callahan 1-A.
Doyle, C. H. Lebow 9.
21-13-14 Dunn, Cumberland 3.
8-13-13 Bruner, E. J. Lambert 4.
16-13-13 Lovett, Helena 2.
12-14-13 Harris, Clarion Oil 6.
15-14-13 Miller, Invader Oil 15.
1-14-14 Harris, Arksarben Oil 7.
10-14-14 Stevens, Wick Pet. 6.
15-14-14 Colbert, J. G. Haas 12.
24-14-14 Flint, F. D. Misener 4.
4-15-13 Foreman, F. B. Murta 1.
7-15-13 Field, Devonian Oil 6.
Wisener, Devontan Oil 11.
9-15-13 Hawkins, Blakely 1.
18-15-13 Long, J. G. Lyons 1.
18-15-13 Doyle, W. B. Pine 6.
7-15-14 Brown, E. B. Grubbs 1.
23-15-14 Jefferson, Sinclair Oil 16.
35-13-11 Tobler, The Prairie O. & G. 2.

Shut Down

34-16-11 Ross, Paraffin Oil 6.
20-16-12 Fee, Crider 1.
30-16-13 Houston, P. E. Williams 1.
6-15-11 Thompson, H. C. Wilson 2.
32-15-11 Gooden, Misener et al 5.
20-15-12 Adams, D. D. Mickelson 6.
35-15-12 Ostron, Barbara Oil 2.
35-14-12 Smith, Sheldon-Houston Oil 1.
27-13-11 Partee, E. R. Black 1.
3-11-12 Calloway, B. Martin et al 1.
32-11-12 Ashbury, Webb & al 1.
6-12-14 Griffin, Kingwood Oil 3.
15-13-14 Scott, Utah Oil 15.
20-13-13 Beaver, A. Skelton 1.
22-13-13 McNack, O. Henson 1.
6-14-14 Harris, D. J. Kirkpatrick 3.
26-14-14 Flint, J. L. Selby 14.
19-15-14 Campbell, A. W. Cline 5.
Rigs, 24; wells drilling, 82; total, 106.

SEMINOLE COUNTY

Rigs

28-11-8e N. Williams, Gypsy Oil 1, 2.
15-9n-7e Jonah, Pure Oil 1.
14-8n-7e Norval, Magnolia Pet. 1.
19-8n-8e Taylor, W. R. Ramsey 2.
6-7n-8e Dindy, Superior Oil 1.

Wells Drilling

1-11-8e Harris, Wilcox O. & G. 1.
10-11-8e Davis, Transcontinental Oil 1.
28-11-8e N. Williams, Continental Oil 2, 3.
32-11-8e Williams, Phillips Pet. 1.
33-11-8e Baker, Carter & Pulaski 7.
34-11-8e Whitfield, McMann & Magnolia 2.
4-10-6e Madgett, Jarvis & Holm 1.
33-10-6e Davis, J. F. Searight 1.
3-10-8e Hill, Nowata O. & R. 3.
15-10-8e Moss, Roxana Pet. 3.
31-10-8e Bleeker, Atlantic O. P. 1.
10-9n-5e Ingram, Morgan & Flynn 1.
15-9n-6e Noble, Superior Oil 1-A.
24-9n-6e Dyer, I. T. I. Oil 1.
17-9n-7e Bull, Sinclair Oil 1.
7-9n-8e Cobb, Independent, Jarvis & Holm 1.
8-9n-8e Bethel, Twin State Oil 1.
Hill, Berry Pet. 1.
Buckner, Phillips Pet. 1.
17-9n-8e Johnson, Mid-Continent Pet. 1.
18-9n-8e Jefferson, Shaffer O. & R. 1.
Peter, Southwestern Pet. 1.
22-9n-8e Williams, Jarvis & Holm 1.
31-8n-6e Pullatka, Superior Oil 1.
14-8n-7e Carolina, Magnolia Pet. 2.
15-8n-7e Carolina, Magnolia Pet. 3.
36-8n-7e Logan, W. R. Ramsey 3.
27-8n-8e Brown, J. W. McCullough 1.
29-8n-8e Walker, Dixie Oil 4.
31-8n-8e Amos, W. R. Ramsey 1.
4-7n-6e Walker, Bryan Bros. 1.
5-7n-8e Harjo, Magnolia Pet. 1.
6-7n-8e Carolina, Homaokla Oil 2.
Knight, Dixie Oil 4.
25-6n-6e Mingo, T. B. Slick 1.
6-6n-8e Winey, R. F. Garland & Co. 1.
24-5n-5e Nitley, Riverside & Kinney 1.
15-8n-7e Main, The Prairie O. & G. 1.

Shut Down

1-9n-5e Sanjo, F. J. Searight 1.
15-8n-7e Thomas, The Texas Co. 1.
30-8n-8e Bowlegs, Gardner Pet. 1.
31-8n-8e Sampson, W. R. Ramsey 2.
22-7n-7e Davis, Transcontinental Oil 1.
6-7n-8e Hawkins, Buttram et al 1.
Hawkins, P. & R. Corp. 1.
33-6n-6e Christy, Maxwell & Harvey 1.
Rigs, 6; wells drilling, 47; total, 53.

OKFUSKEE COUNTY

Rigs

1-12-9e Jones, Blakely O. & G. 1.
17-12-10 Chupco, Amerada Pet. 1.
13-12-11 Looney, J. K. Leard 3.
14-12-11 Larsey, Keaton & Gold 2.
16-12-11 Unallotted, Windsor Oil 1.
27-12-11 Holmes, Hartman 1.
33-12-11 McCoy, Josey Oil 10.
Fields, Josey Oil 1.
36-11-9e Knight, McMann Oil 1.
13-11-11 Holmes, Gladys Belle Oil 8.
15-11-11 Jacobs, Windsor Oil 3.
22-11-11 Holmes, Windsor Oil 6.
21-10-9e Tecumseh, Mid-Continent Pet. 1.
33-10-9e Barnett, Arkansas Fuel Oil 2.

Wells Drilling

14-12-8e Isaacs, Western States Oil 1.
1-12-7e Bruner, Waite Phillips 1.
28-13-8e Hill, Dalton & Baker 1.
23-13-7e Byrd, Sinclair Oil 1.
12-12-10 Cinda, J. Burns 1.
13-12-11 Sugar, Anglo-Texas and N. Baltimore 7, 4.
Harjo, Amerada Pet. 10, 11.
14-12-11 Bird, J. E. Dow 1-A.
22-12-11 Jacobs, Independent O. & G. 1.
32-12-11 Hulsey, Josey Oil 3.
Carolina, Josey Oil 2.
23-12-11 McCoy, Josey Oil 8, 9.
Stubblefield, Josey Oil 1.
Carolina, Independent O. & G. 3.
36-12-11 Rentie, M. K. & P. Oil 15.
36-11-9e Wind, Olean Pet. 2.
22-11-11 Guy, Windsor Oil 7.
Guy, Windsor & Independent 3.
24-11-11 Fields, Phillips Pet. 17.
Fields, Minnehoma Oil 10.
15-10-9e Beardon, Phillips Pet. 1.
21-10-9e Simon, Mid-Continent Pet. 1.
10-10-11 School land, Transcontinental Oil 1.
14-10-11 Fife, Mid-Kansas Oil 1.
18-10-11 Alberty, Morgan, Flynn and Amerada Pet. 1.
7-10-12 Birdcreek, Guy Fisher and Carter Oil 1.
8-10-12 Fisher, McCarty et al 1.
21-12-8e Field, Bingham & Smith 1.
23-13-8e Scott, Phillips Pet. 1.

Shut Down

18-12-8e Bear, Dalton & Baker 1.
17-12-7e Hennechuchee, Mid-Kansas Oil 1-A.
3-12-10 Hivem, Alex Bays et al 1.
8-12-10 Yarhola, Blakely et al 1.
23-12-10 Harjo, Blakely et al 1.
28-12-10 Johnson, Central Natl. Oil 1.
22-12-11 Barnett, Hartman & Mann 7.
33-12-11 McCoy, Josey Oil 1.
3-11-11 Field, Barbara Oil 2.
10-11-11 Washington, Blakely O. & G. 2.
13-11-11 Jefferson, Gypsy Oil 1.
Holmes, Gladys Belle Oil 9.
Holmes, Independent O. & G. 14, 15.
24-11-11 Fields, Lyons Pet. 8.
15-10-9e Bruner, Burk Greis 1.
15-10-10 Tiplaw, Pratt & Burton 1.
31-10-11 Lasley, White Eagle Oil 1.
Rigs, 14; wells drilling, 50; total, 64.

HUGHES COUNTY

Rigs

26-9n-9e Far, Independent O. & G. 2.
Proctor, Empire G. & F. 5.
27-9n-9e Hill, Independent O. & G. 1.
Long, Gypsy Oil 2.
Hill, J. W. McCullough 1.
34-9n-9e Harjo, Mid-Kansas Oil 1.
35-9n-9e Harjo, Waite Phillips 1.
24-9n-10 Barnett, Roxana Pet. 1.
31-9n-10 Riley, Sands Pet. 1.
11-5n-8e Stewart, Parmenter et al 1.

Wells Drilling

29-8n-9e Lowe, Kingwood Oil 1.
1-9n-9e Cain, Carter & Sands Pet. 2, 3, 4.
Cain, Minnehoma Oil 3.
Arbor, Josey Oil 5.
10-9n-9e Polk, T. B. Slick 3.
14-9n-9e Bowlegs, Douglas Oil 1.
Deere, Independent & Atlantic 1.
17-9n-9e Smith, Transcontinental Oil 1.
19-9n-9e Charles, I. T. I. Oil 1.
23-9n-9e Bruner, Empire G. & F. 2.
Harjo, Independent O. & G. 1.
Bowlegs, Ramsey & Dempsey 2.
26-9n-9e Fat, Arkansas Fuel Oil 1.
Harjo, Transcontinental & Independent 2, 3, 4, 5, 6.
Proctor, Independent & Darby Pet. 1, 2.
Far, Independent O. & G. 1.
Brown, Foster Inv. 1.
Davis, Foster Inv. & Independent 1.
Proctor, Empire G. & F. 1, 2, 3, 4.
27-9n-9e Long, Gypsy Oil 1.
Brown Foster Inv. 1.
Long, Phillips Pet. 1, 2.
10-9n-10 Lee, Detrick et al 1.
4-9n-11 Harjo, Tidal Osage Oil 4.
Harjo, Gibson & Zahniser 4.
24-8n-8e Brooks, Champlin, Bass et al 1.
35-8n-8e Jefferson, Gypsy Oil 2.
18-8n-10 Irvine, Dixie Oil 3, 4, 2.
Diamond "A," Dixie Oil 2.
Diamond "B," Dixie Oil 3.
Diamond "C," Dixie Oil 3.
Seacrest, Independent & Amerada 1.
Morrison, Independent O. & G. 2.
Alexander, Independent & Gladys Belle 3.
19-8n-10 Pickens, W. R. Ramsey 2.
24-8n-10 Chrisholm, Independent O. & G. 1.
28-7n-8e Bruner, J. L. Brock Jr. 1.
12-7n-9e Hawkins, J. W. McCullough 1.
13-7n-9e Irving, Independent O. & G. 1.
25-8n-9e Harjo, Independent O. & G. 1.
27-8n-9e McFarland, Mid-Kansas Oil 1.

Shut Down

4-9n-11 Harjo, Gibson & Zahniser 2.
11-8n-8e Larney, Dixie Oil 1.
12-8n-8e Herrod, Roxana Pet. 1.
35-8n-8e Bulling, Roxana Pet. 3.
8-6n-10 Kite, Walton, Snyder & Marshall 1.
30-5n-10 Pearson, Henry Greis & Kerr 1.
Rigs, 10; wells drilling, 66; total, 76.

MUSKOGEE AND WAGONER COUNTIES

Rigs

6-14-17 Manuel, J. L. Slusher 1.
8-16-18 Murrell, B. B. Wheeler 1.
35-17-16 Lewis, W. J. Metzger 1.
29-18-16 Hawkins, D. T. Marr 1.

Wells Drilling

26-13-16 Peter, J. Shepard 1.
1-14-17 Sango, T-O Pet. 7.
30-14-19 Harris, E. M. Johnson 2.
15-15-15 Young, G. S. Wilson 4.
35-15-16 Lee, W. N. Harsha 2.
28-15-17 Taylor, J. M. Folts 1.
16-17-16 Cully, Skeeter 5.
24-17-16 Tiger, R. E. Fike 1.
35-17-16 Prince, Mitchell 1.
21-18-16 Tiger, Eastern Okla. 4.
32-18-16 Cole, P. Boyle 1.

Shut Down

19-17-16 Bruner, Neal et al 1.
23-17-16 Childers, N. Carter 1.
Rigs, 4; wells drilling, 13; total, 17.

CREEK COUNTY

Rigs

15-19-7e Manuel, H. W. Skelly 1.
14-17-8e Johnson, Atlantic O. P. 8.
Fry, Atlantic O. P. 5.
27-17-8e Alec, Waite Phillips 2.
5-16-8e Emarthla, Magnolia Pet. 4.
17-15-8e Yarhola, Pure Oil 15.
Wilson, Roxana Pet. 11.
17-16-8e Roberts, Eastern Oil 5.
20-15-8e Beaver, Skelly Oil 1-A.
1-14-8e Brown, C. G. Tibbens 1.
12-14-8e Ponds, Haskell Oil 4.
McKann, Skelly Oil 11.
Brown, T. P. C. & O. Co. 2, 3.
Beaver, C. G. Tibbens 5.
14-14-8e Durant, C. G. Tibbens 1-A.
7-18-9e Fields, Billingsley 1-A.
18-18-9e Jones, Eva Bell Oil 3.
2-18-11 Sherill, Sheridan Oil 2.
6-18-12 Gray, Gypsy Oil 15.
Strip, Kennedy et al 3.
21-17-9e Harjoche, T. P. C. & O. Co. 5.
36-17-9e Bright, D. B. Mason 1.
19-17-10 Jacinta, Amerada Pet. 2.
24-17-10 Tahkaney, J. H. Wright 5.
34-17-10 Snapp, H. C. Wilson 1.
4-17-11 Stone, Cole & Shaffer 1.
7-17-11 McDougal, M. P. Evans 1.
11-17-11 Davis, Kurnell Oil 6.
30-17-11 Garald & Nichols, M. F. Evans 1.
7-16-9e Sango, W. R. Davis 1.
20-16-9b Barnett, Dickerson et al 1.
21-16-9e Hendrickson, Jackson & Wise 3.
24-16-9e Edwards, J. W. McCulouch 1.
2-14-10 Wright, Tom Kelly 1.
32-14-10 Walker, Mid-Continent Pet. et al 3.
12-14-8e Saab, The Prairie O. & G. 2.

Wells Drilling

14-19-8e Lewis, Gled Oil 4.
Miller, Oklahoma Eastern Oil 1.
24-19-8e Knight, J. B. Grieves 1.
14-18-8e Hazlip, J. E. Chronic et al 1.
11-17-8e Wyatt, Bu-Vi-Bar Pet. 1.
12-17-8e Bishop, Astec Oil 1.
13-17-8e Harjo, Transcontinental Oil 3.
14-17-8e Johnson, Atlantic O. P. 5.
19-17-8e Cubbie, Transcontinental Oil 1.
23-17-8e Johnson, Savoy Oil 1.
26-17-8e Cobb, Waite Phillips 1.
27-17-8e Bigpond, Inter-Ocean and Reland Oil 1.
32-17-8e Washington, Olean Pet. 6.
35-17-8e ——, Nowata O. & R.
29-16-8e Hawkins, Clayton, Lynch et al 1.
25-15-7e Charles, Phillips Pet. 2.

17-15-8e Roberts, Tidal Oil 8-A.
30-15-8e Helacoweney, Phillips Pet. 2.
5-14-7e Follopa, Wilcox O. & G. 1.
2-14-8e Ponda, Gypsy Oil 4.
13-14-8e Beaver, C. G. Tibbens 4.
McKann, Skelly Oil 10.
Bruner, The Texas Co. 2.
13-14-8e Meaney, The Texas Co. 4.
14-14-8e Francis, C. G. Tibbens 2, 3.
28-14-8e Mitchell, Papoose Oil 1.
30-18-9e Gates, H. W. Bartlett 1.
27-18-10 Allen, Vaughn & Wheeler 6.
31-18-10 Hawkins, Madden & Madden 1.
3-18-11 Tahlodge, Atlantic O. P. 1.
14-18-11 Tiger, O. N. White 1-A.
18-18-11 Euckie, Ira Anderson 1.
32-18-11 Frew, Cross et al 1.
33-18-11 Sepulpa, J. Livingston 2.
6-18-12 Strip, Kennedy et al 2.
7-18-12 Billie, Chronic et al 1-A.
1-17-9e Bowlegs, Dixie Drilling Co. 1.
19-17-10 Wanuke, Sherman et al 2.
23-17-10 Holder, J. H. Wright 2.
24-17-10 Bucktrot, Pioneer Pet. 5.
25-17-10 Goody, J. H. Wright 3.
27-17-10 Buckrot, Wilcox O. & G. 1.
1-17-11 Bittle, Edgerton et al 1.
3-17-11 Layton, Jackson & Wise 2.
3-17-11 Fife, S. J. Smith 2.
8-17-11 Freeman, Ireland et al 3.
9-17-11 Bays, Ireland 2.
10-17-11 Hawkins, H. E. Williams 1.
Cumsey, Deen & Wickers 1.
17-17-11 Wacoche, Shaffer O. & R. 3.
26-17-11 Newton, Wm. Gray 1-A.
17-16-9e Beaver, T. P. C. & O. Co. 7.
1-16-10 Ralston, Sherry et al 1.
1-16-11 Anthis, Wilcox & Oswalt 3.
10-16-11 Fee, J. E. Crosby 12.
11-16-11 Berryhill, Skelly Oil 1.
12-16-11 Ricks, H. U. Bartlett 1.
28-15-9e Fields, The Texas Co. 1.
30-15-9e Unallotted, C. G. Tibbens 18, 20.
18-15-10 Maloney, Berry Pet. 1-A.
22-15-10 Clark, J. H. Rebold 1.
29-15-10 Cover, Independent O. & G. 2.
34-15-10 Sewell, Continental Oil 2.
5-14-9e Thompson, C. G. Tibbens 1.
17-14-10 Johnson, Quinlan et al 2.
Johnson, Donnelly et al 4.
Johnson, Gladys Belle Oil 3.
18-14-10 Unallotted, P. & R. Corp. 2.
Dixon, Wilcox O. & G. 2.
20-14-10 Kimble & Reading, Wilcox O. & G. 12.
30-14-10 Craig, Wood Oil 1.
33-14-10 Kimble & Reading, Darby Pet. and Burk Greis 1.
5-16-8e Hammer, The Prairie O. & G. 10.
Shut Down
5-19-8e Noble, Whitten et al 1.
18-17-8e Hill, Black Gold Oil 1.
32-17-8e Washington, Olean Pet. 2.
25-15-8e Watley, C. G. Tibbens 1.
23-17-10 Kochaney, Bu-Vi-Bar Pet. 1-A.
13-17-11 McIntosh, A. Sheldon 1-A.
36-16-9e Allen, Williams & Bell 1.
3-14-10 Meyers, Central Natl. Oil 1.
5-14-10 Grooms, Evans et al 1.
11-14-10 Webb, H. George et al 1.
Rigs, 37; wells drilling, 85; total 122.

PAWNEE COUNTY

Rigs

22-23-4e Zoldoskie, Donahue & Carter 4.
36-21-7e School land, Mid-Continent Pet. 7.
26-21-8e ——, Pulaski Oil 9.
32-21-8e Sigon, Adamson C. O. & G. Co. 6.
35-21-8e Sewell, Tidal Oil 1.
16-20-6e Rimmer, Elmar Oil 6.
19-20-6e White, Walter E. Brown 1.
5-20-8e Aten, Sun Ray Oil 3.
10-20-8e Brentenall, Sinclair Oil 5.
10-20-5e Mechler, The Prairie O. & G. 1.

Wells Drilling

19-21-8e Booher, The Prairie O. & G. 19.
33-23-3e Miller, Watchorn O. & G. 12, 14.
4-22-3e Miller, Magnolia Pet. 5, 9, 10.
5-22-3e Altaffer, Magnolia Pet. 2.
Wolfe, Channelin Ref. 1.
27-23-4e Brian, Sinclair Oil 1.
36-23-4e School land, Magnolia Pet. 1.
4-23-5e Krow, Magnolia Pet. 1.
29-23-5e Newport, Magnolia Pet. 1.
3-22-5e Ackerman, E. B. Rich et al 1.
11-21-5e Redd, F. R. Billingslea 1.
17-21-7e Diehnel, R. E. Freeman 2.
35-21-7e Armstrong, Selby & Gypsy 1-A.
36-21-7e School land, Mid-Continent Pet. 6.
27-21-8e Nielson, Dixie Oil 1-A.
31-21-8e Anglin, J. B. Grieves 5.
32-21-8e Meyers, Adamson C. O. & G. Co. 3.
35-21-8e Norman, Gypsy Oil 5, 13.
Sewell, Tidal Oil 6, 2, 7.
Wells-Jones, The Texas Co. 21.
3-20-6e Garner, Privett Drilling Co. 1.
9-20-6e Fugate, Magnolia Pet. 3.
B.
Fugate, Magnolia Pet. 1.
16-20-6e Baker, Magnolia Pet. 8.
School land, Magnolia Pet. 2.
36-20-6e School land, Riverside O. & R. 1.
1-20-7e Mullendore, Selby & Gypsy 21.
2-20-7e Woolf, Murray Oil et al 5.
4-20-7e Hallett townsite, W. A. McCabe et al 1.
8-20-7e Fleming, Twin State Oil 7.
Lucas, Sun Ray Oil 1.
11-20-7e Rogers, Block & Carnahan 1-A.
14-20-7e McDonald, Amerada Pet. 1-A.
21-20-7e Kimball, Ora Stein 1.
7-20-8e Martin, Roy Sears et al 1-A.
Childers, Minnehoma Oil 3.
Martin, J. Sheltz et al 2.
9-20-8e Vowell, Minnehoma Oil 8.
23-20-8e Davis, Southwestern O. Fields 7.
Shut Down
33-23-3e Brown, Watchorn O. & G. 1.
Miller, Marland Oil 2, 4.
34-24-5e Vanator, Mid-Kansas O. & G. 1.
5-23-5e Phillips, Haley, Garber & Pulse 3.
16-22-7e ——, Bu-Vi-Bar Pet. 1.
29-21-8e Davis, Rube De Long 1-A.
35-21-8e Norman, Gypsy Oil 3, 7.
28-20-6e White, Davis Drilling Co. 1.
Rigs, 10; wells drilling, 55; total, 65.

KAY COUNTY

Rigs

8-28-1w Oard, Connelly & Laraux 1.
33-28-1e Hanz, Carter Oil 1.
28-28-2e Huddleson, John Stark et al 1.
4-27-1w Kelly, Arkansas Fuel Oil 2.
5-27-1w Savage, Polling & Denny 1.
9-27-1w Geiger, Blackwell Pet. & G. 4.
18-27-1e Preston, Lee Master et al 1.
1-26-2w Richmond, Marland & Amerada 4.
32-26-2e McNeil, Ponca Lee Oil 1.
15-25-2w Thomas, Carter Oil 2.
22-27-4e ——, Ohaver et al 1.

Wells Drilling

13-29-2w Olson, Marland Oil 1.
20-29-1w Day, The Texas Co. 1.
21-29-1w Priboth, Comar Oil 6.
Duncan, Comar Oil 6.
Harvell, Comar Oil 6.
McCormick, Comar Oil 5, 6.
16-29-1e School land, Marland Oil 1.
School land, Wentz Oil 1.
20-28-2w Smith, Mississippi Valley Oil 1.
5-28-1w Biddle, Comar Oil 2.
Bechtel, Comar Oil 6.
McCullough, Comar Oil 3.
Orr, Comar Oil 1.
8-28-1w Townsite, Mid-Cont. Pet. 1.
Townsite, C. B. Davis 1.
6-28-1e Wolfe, McComas et al 1.
36-27-2w School land, Mid-Cont. Pet. 1.
4-27-1w Case, Polling & Denny 2.
5-27-1w Jameson, Blackwell O. & G. 1.
7-27-1w Bailey, Ostot Dev. 1.
8-27-1w Massey, Blackwell O. & G. 1.
Baggs, Tidal Oil 2.
9-27-1w Burkholder, The Texas Co. 1.
Brown, Harris & Hahn 2.
16-27-1w Barr, Manahan et al 2.
Slocum, Anolu Oil 3.
17-27-1w Robinson, Marland Oil 1.
Jameson, Carrdie Oil 2.
32-27-1w Chambers, O'Kansas Oil 1.
36-27-1e School land, Mid-Cont. Pet. 1.
3-27-2e Balzer, Mississippi Valley Oil 1.
22-27-2e Butler, Mississippi Valley Oil 1.
29-27-2e Welge, Golconda Oil 1.
31-27-2e Schmidt, Comar Oil 1.
1-26-2w Fitzgerald, Marland Oil 4, 5.
Hockstater, Marland Oil 1, 1-A.
Richmond, Mutual Oil 2.
12-26-2w Hubbard, Marland Oil 4.
12-26-1w Sodowsky, Harris & Hahn 1.
16-26-3e School land, Souligny et al 1.
15-25-2w Thomas, Marland Oil 1, 4-A. 5, 6, 7.
16-25-2w School land, Marland Oil 3-A. 7.
Thomas, Carter Oil 1.
21-25-2w Turk, Carter Oil 4.
22-25-2w Stahl, Marland & Phillips Pet. 1.
Siler, Twin State Oil 1, 5.
26-25-2w Hangartman, Independent O. & G. 1.
33-25-2w School land, Mid-Cont. Pet. 1.
15-25-1w McDaniels, Tonkawa Dev. Co. 1.
27-25-1w Davis, The Texas Co. 14, 15.
28-25-1w Mahoney, Wentz Oil 7, 8.
30-25-1w Pool, Carter Oil 1.
33-25-1w School land, Cosden & Marland 11.
34-25-1w Beverlin, Comar Oil 9-W.
35-25-1w Endicott, T. B. Slick 7.
26-25-1w School land, Comar Oil 1.
14-25-1e Little Chief, O'Kansas Oil 1.
22-29-4e ——, King Drilling Co. 1.
36-28-4e ——, Terminal Oil 1.
20-27-4e ——, Le Wright & Gay 1.
24-27-4e Jan, D. W. Moore 1.
21-25-2w Hoisington, The Prairie O. & G. 1.
20-25-2w McMillen, The Prairie O. & G. 1.
10-27-1w Jones, The Prairie O. & G. 4.
1-26-2w Smith "A," The Prairie O. & G. 7.

Shut Down

25-29-2w Sheetz, Hickman & Barnhart 1.
21-29-1w Priboth, Comar Oil 2.
5-28-1w Orr, Comar Oil 1.
7-28-1w Vickers, T. B. Slick 1.
8-28-1w Townsite, Wrightsman Pet. 1.
Townsite, Louis Freidman 1.
Townsite, Mummert et al 1.
Townsite, Triangle Oil 1.
Townsite, Mid-Cont. Pet. 1.
Townsite, S. B. Wendall et al 1.
Townsite, Joe Cain et al 1.
Townsite, Lassen et al 1.
Townsite, L. & M. Oil 1.
Townsite, Broadhurst et al 1.
Townsite, Windle et al 1.
Townsite, Walls & Wade 1.
Townsite, Fitzgerald Construction Co. 1.
Townsite, Jackson et al 1.
Townsite, Fred Harrison 1.
33-28-1w School land, Simms Oil 1.
11-28-1e Lowery, Okla. Northern O. & G. 1.
3-28-3e Eaton, Parkhurst & Graham 1.
31-28-3e Street, Davis Drilling Co. 1.
16-27-1w Skelton, Manahan et al 3.
18-27-1w Johnson, Una Lee Oil 1.
24-27-1w McClelland, M. F. McComas 1.
29-27-1e Sterrett, McIntyre & Foster 1.
1-26-2w Richmond, Mutual Oil 3.
Richmond, Empire G. & F. 1.
6-26-1w Glasgow, National Union Oil 1
7-26-1w Kane, Blackwell O. & G. 1.
4-25-2w Kreger, Clair Smith 1.
16-25-2w School land, Mid-Cont. Pet. 1, 2.
School land, Marland Oil 4, 5, 6.
22-25-2w Birdsell, Marland Oil 1.
33-25-2w School land, Pennok Oil 1.
33-25-1w School land, Cosden & Marland 10.
34-25-1w Endicott, Pennok Oil 2.
Rigs, 11; wells drilling, 117; total, 128.

PAYNE COUNTY

Rigs

24-19-4e Pleasants, Magnolia Pet. 2.
35-19-5e Laughlin, Josey Oil 11.
26-18-3e Waltman, T. W. Oil 1.
10-18-4e Cole, Deep Rock O. & G. 1.
7-18-5e Goss, Twin State Oil 1.
8-18-6e Walsh, F. S. Freeland 1-A.
33-17-4e Griswald, Mid-Kansas Oil 1.
2-20-2e Catts, Colorado O. & G. 1.

Wells Drilling

23-20-4e Wildstaff, Wentz Oil 1.
4-19-1w Kinneman, Reiter-Foster 1.
13-19-4e Stover, Roxana Pet. 1.
14-19-4e Stephenson, Olean Pet. 1.
23-19-4e Farrell, Olean Pet. 1.
27-19-4e Cheveller, Magnolia Pet. 11.
36-19-4e School land, Magnolia Pet. 1.
8-19-5e Garr, Garr Oil 5.
17-19-5e McKaughn, The Texas Co. 1.
35-19-5e Laughlin, Josey Oil 10.
22-18-3e Nelson, J. A. Hull Oil 1.
23-18-3e Goodno, Deep Rock O. & G. 3.
Derry, Deep Rock O. & G. 2, 3, 4.
Shannon, Deep Rock O. & G. 1.
Boyles, Deep Rock O. & G. 1, 2, 3, 4.
Posey, Deep Rock O. & G. 1.
Haley, Amerada Pet. 2, 1.
Haley, Mulberry Oil 3.
26-18-3e Barth, Deep Rock O. & G. 2.
27-18-3e Fulton, Deep Rock O. & G. 1.
23-18-4e Boyles, New England O. & P. L. 2.
21-18-4e ——, Mulberry Oil 2.
2-18-5e Busbee, Josey Oil 2.
Laughlin, Shaffer O. & R. 15.
7-18-5e Blue, Marland Oil 2.
2-18-6e Lorett, Blauner & Hartley 1-A.
27-18-6e Culbertson, McGill et al 1.
5-17-4e Strawn, Mulberry Oil 3.
Flint, Mulberry Oil 2.
Sharrum, Shaffer O. & R. 3.
6-17-4e Foster, Home Gas 1.
Payne, Magnolia Pet. 3.

Shut Down

21-19-1w Lewis, Ponca O. & G. 1.
8-19-5e Garr, Garr Oil 4.
35-19-5e Laughlin, Josey Oil 9.
23-18-3e Haley, Amerada Pet. 3.
1-18-5e Laughlin, Josey Oil 4.
18-18-5e Harlow, Carter Oil 2.
Rigs, 8; wells drilling, 44; total, 52.

LINCOLN COUNTY

Rigs

35-15-5e Caves, Gypsy Oil 8.
Sporleder, Magnolia Pet. 1.
6-15-6e Earp, Carter Oil 3.
1-14-5e Powers, Sinclair Oil 1.
2-14-5e Hopkins, The Texas Co. 4-B.
Hopkins, Skelly Oil 7.
Hopkins, Amerada Pet. 2.
Tuttle, Carter Oil 6.
10-14-5e Patterson, Phillips Pet. 2, 3.
Nickel, Shaffer O. & R. 2, 3.
11-14-5e Caves, Gypsy Oil 5, 6, 7.
Roberson, Southwestern Pet. 1.
3-14-5e Stout, The Prairie O. & G. 16.
35-15-5e Sporleder, The Prairie O. & G. 2.

Wells Drilling

14-13-6e Heinzig, P. & R. Corp. 1.
12-13-6e Reeves, Amerada Pet. 1.
7-13-3e Ewing, Douglas Oil 1.
3-14-5e Stout, The Prairie O. & G. 13, 15.
7-15-5e Price, The Prairie O. & G. 1.
19-17-3e Sutton, Roy Willis et al 1.
33-17-6e Messawat, Independent O. & G. 1.
20-15-5e Elliott, I. T. I. Oil 1.
25-15-5e Stahl, Flynn, Morgan & Young 1.
34-15-5e M. & F. Sporleder, Magnolia Pet. 6.
35-15-5e Jefferson, Pure Oil 5.
Caves, Gypsy Oil 3, 4, 5, 6, 7.
36-15-5e School land, Mid-Kansas Oil 1.
Johndahl, Amerada & Marland 1.
School land, Wentz Oil 1.
6-15-6e Earp, Carter Oil 2.
7-15-6e Ford, Skelly Oil 4.
8-15-6e Kilgore, Phillips Pet. 1.
Earp, Mid-Cont. Pet. 1, 2.
1-14-5e Keeler, Devonian Oil 1, 2.
2-14-5e Hopkins, The Texas Co. 2-B, 3-B.
Hopkins, Skelly Oil 3, 4, 5, 6.
Tipton, The Texas Co. 7, 8, 9.
Hopkins, Amerada Pet. 1.
Tuttle, Carter Oil 4, 5.
A. Sukovaty, Magnolia Pet. 11, 12, 13, 14, 15, 16.
3-14-5e Beliess, Amerada Pet. 2, 3, 4.
Beliess, Magnolia Pet. 1.
P. Sukovaty, Magnolia Pet. 6.
Bagwell, Selby & Southwestern Pet. 10, 11.
4-14-5e Thompson, Magnolia Pet. 2, 3.
Strough, The Texas Co. 1.
8-14-5e Martin, Magnolia Pet. 1.
10-14-5e Nickel, Phillips Pet. 1.
11-14-5e Caves, Gypsy Oil 3, 4.
Chapman, Magnolia Pet. 1.
16-14-5e School land, Magnolia Pet. 1.
26-16-5e Rittenhouse, Flynn & Morgan 1.
36-15-4e Cull, Ruby et al 1.
5-12-3e Jones, Wilcox O. & G. 1.
31-12-6e Bentley, J. W. McCullough 1.

Shut Down

20-17-6e Johnson, Hiram C. Wilson 1.
15-15-6e Hubbard, Johndahl 1.
7-14-4e Kentzelten, W. M. Schriver 1-A.
12-14-4e Leake, Pure Oil 2.
Rigs, 18; wells drilling, 69; total, 87.

GARFIELD COUNTY

Rigs

36-23-5w Nelson, Ostot et al 1.
13-22-4w School land, Cosden & Marland 57, 60.
Denker, Sinclair Oil 27, 28.
18-22-3w Hartley, Sinclair Oil 27.
31-22-3w McLean, Charles Knox 3.
11-21-4w Fee, Beople et al 1.
2-20-5w Fee, Sinclair Oil 1.

Wells Drilling

1-22-4w Johnson, The Prairie O. & G. 2.
12-22-4w Wishard, The Prairie O. & G. 11.
14-24-3w Gorusch, Foger Oil 1.
34-24-3w Hays, Roxana Pet. 1.
15-23-5w Hennessey, Wilcox O. & G. 1.
19-23-3w Garber, Marland Oil 1.
13-22-4w School land, Cosden & Marland 59.
Walker (North), Sinclair Oil 24, 26, 28, 29, 30.
15-22-4w Searcy, Magnolia Pet. 3.
24-22-4w Belveal, Healdton Pet. 32.
Belveal, Sinclair Oil 31.
Walker (South), Sinclair Oil 26.
Dively, Carter Oil 55.
36-22-4w Ed Kisner, Sinclair Oil 6.
Mitcher, Sinclair Oil 15.
7-22-3w Marley, Chas. Knox 6.
Lynds, D. W. Franchott.
18-22-3w Whitney, Haley, Garber & Pulse 2.
Schroeder, Roxana Pet. 10-W, 11-W, 12-W, 13-W.
Hartley, Sinclair Oil 21, 22, 24, 25, 26.
19-22-3w Kisner (West), Sinclair Oil 23, 24.
20-22-3w Markel, Beople et al 1.
30-22-3w Burns, Sinclair Oil 1.
Crews, Sinclair Oil 10.
12-21-5w Smith, Tidal Oil 1.
4-21-3w Clock, Pender Pet. 1.
22-21-3w Detwiler, Slick, Harrington et al 1.
22-20-8w Secor, Garfield Buell et al 1.

Shut Down

10-24-4w Meyers, Sinclair Oil 1.
17-23-8w Dyche, Jack Reid et al 1.
26-23-7w Cox, Katherine Oil Syndicate 1.
6-23-6w Hess, Weir & Wood 1.
35-23-3w Carter, Failing & Lawson 1.
3-22-5w Swinery, Ashby & Barr 1.
1-22-4w Seaman, Hopper et al 1.
13-22-4w Wolfe, Roxana Pet. 3-W.
School land, Cosden & Marland 58.
14-22-4w Dively, Sinclair Oil 5.
24-22-4w Belveal, Sinclair Oil 28.
Beggs, Champlin Ref. 34.
Dively, Carter Oil 53.
27-22-4w Peters, Hopper et al 1.
36-22-4w Heim, Imo Oil 3.
5-22-3w Mayes, Carlew Drilling 1.
19-22-3w Crews, Crews Heirs Oil 13.
8-21-7w Montgomery, Frank Frantz 1.
31-21-5w Vanderwork, E. A. Summers 1.
13-21-4w Schriver, Beople et al 1.
8-21-3w Bartles, Dieckwald Oil 1.
7-20-6w Bemrad, O. O. Owens 1.
13-20-4w Faramel, Summers et al 1.
Rigs, 9; wells drilling, 63; total, 72.

GRANT COUNTY

Rigs

6-28-3w Snyder, Ostot Dev. 1.
24-27-3w Birdston, Burns & Beasley 1.
16-26-3w Sherrer, Flannagan & Dedman 1.

Wells Drilling

8-27-8w Moore, Register Oil 1.
26-27-4w Bohan, Wilson & Gloyd 1.
2-27-3w Webb, Marland Oil 1.
22-27-3w Lane, Blackwell O. & G. 2.
23-27-3w Martin, Kay O. & G. 3.
Flood, Larutan Fuel Co. 1.
27-27-3w Wicke, Blackwell O. & G. 1.

Shut Down

14-27-3w Howell, Western States Oil 1.
22-27-3w Stewart, Western States Oil 4-A.
27-27-3w Lane, Western States Oil 1.
23-26-3w Tabor, Lambert & Minks 1.
22-25-4w Vallner, Cowden 2.
Rigs, 3; wells drilling, 13; total, 16.

NOBLE COUNTY

Rig

9-24-1e Miller, Independent O. & G. 1.

Wells Drilling

6-24-2w Stephenson, Marland Oil 1.
18-24-2w Coulter, Olean Pet. 1.
16-24-1w School land, Cosden & Marland 11.
30-24-1w Wilkins, Mid-Co Pet. 12.
Wilkins, Wentz Oil 10.
36-24-1e Warrior, Gypsy Oil 1.
15-23-2w Washburn, Sinclair Oil 1.
1-22-2w White, K-D Oil 1.
26-22-2w Shoop, Champlin Ref. 1.
33-22-2w Burk, Elane Oil 1.
27-22-1e Wentz, Wentz Oil 1.
14-21-2w Austin, Magnolia Pet. 1.
16-21-2w Hoffman, Red Bank Oil 1.
Treman, Red Bank Oil 1.
21-21-2w Reynolds, Magnolia & Bu-Vi-Bar 1.
22-21-2w Weeder, Magnolia Pet. 1.
28-21-2w Snyder, Bu-Vi-Bar Pet. 1.
32-20-1e Hall, Nelson & Hardin 1.

Shut Down

29-24-1w Reed, Mid-Continent Pet. 6.
14-24-2e Edmonds, Ossenbeck et al 1.
7-21-1w Williams, R. L. Corley 1.
29-21-1e Theile, Belt Pet. 1.
12-21-3e Sawyer, Ossenbeck & McMann 1.
Rig, 1; wells drilling, 24; total, 25.

GRADY COUNTY

Rigs

31-10-8w Thompson, Hawkins & Young 1.
2-8n-8w Bray, John Schwartzfisher 1.
34-5n-8w Scott, Hall-Briscoe 1.
35-5n-8w Duke, Skelly Oil 1.

Wells Drilling

31-8n-7w Webb, Watchorn O. & G. 1.
29-6n-7w Brown, Becker et al 1.
23-5n-8w Edmondson, Skelly Oil 1, 2.
25-5n-8w Reed, Briscoe & Hall 3.
Hill, Biscoe & Hall 2.
26-5n-8w Farwell, Magnolia Pet. 5.
Smith, Noble & Westerfelt 3.
34-5n-8w Scott, Carter Oil 1.
35-5n-8w Dryden, J. B. Nichols Oil 1.
McCaughtry, Little Nick Oil 2.
8-5n-6w Thomas, Becker-Reed Oil 1.
2-4n-8w Dryden, Carter Oil 3.
Dryden, Okla. Nat. Gas 1.
11-4n-8w Williams, Magnolia Pet. 2.
14-4n-8w Pendley, Hall & Briscoe 1.
16-4n-6w Bryant, Carter Oil 1.
26-4n-6w Pursley, Carter Oil 1.
28-3n-5w Miller, Magnolia Pet. 1.
35-3n-5w Schramack, Carter Oil 1.
Lindsey, Garvin Drilling 1.

Shut Down

27-3n-5w Kilgore, Clark & Cowden et al 1.
Rigs, 4; wells drilling, 22; total, 26.

STEPHENS AND COTTON COUNTIES

Rigs

23-2n-9w McGee, Pace et al 1.
26-2n-9w Richardson, Flowers et al 2.
25-1n-9w Harris, Magnolia Pet. 11.
34-1n-9w Castle, Illinois-Okla. Pet. 1.
2-1n-5w Payne, Dresser et al 3.
35-1s-9w Doich, Gant et al 1.
34-1s-5w McClanahan, Skelly Oil 1.
9-5s-10w Johnson, Barker & Eaton 1-A.
2-3s-6w Florence, Gibbons & Johnson 1.
26-2n-9w Richardson, Magnolia Pet. 1.
32-1n-5w Charleston, Magnolia Pet. 1.

Wells Drilling

10-2n-9w Waters, Homaokla Oil 1.
27-2n-9w Tullons, Consolidated O. & G. 1.
2-2n-5w Garza, Carter Oil 1.
Goza, Pauline O. & G. 4.
Simms-Garvin, Carter & Knox 1, 3.
11-2n-5w Isherman, Knox Pet. 2.
1-2n-4w Lindsey, Humble O. & R. 1.
23-1n-9w Bolton, C. M. Root 1.
26-1n-9w Brown, Eagle Creek Oil 6.
Fleming, Magnolia Pet. 1.
Brown, Illinois-Okla. Pet. 3.
9-1n-8w Scruggs, E. N. Rust 1.
14-1s-10w Indian, Ellis & Caraker 1.
25-1s-9w Clark, Gant et al 1-A.
Russell, Magnolia Pet. 3.
28-1s-9w Bull, Magnolia Pet. 1.
7-1s-8w Dyal, Knox Pet. & Owl Oil 1.
27-1s-8w Taliaferro, Big Twelve Oil 4.
28-1s-8w Nelson, V. A. Kidney 1-A.
32-1s-8w Blaydes, Amerada Pet. 10.
Blaydes, Carter Oil 6.
Eakes, Crump & Beard 4, 5.
4-1s-7w Fee, Ballard-Choptaw 1.
22-1s-5w Emerson, Mudge Oil 6.
34-1s-5w Ziegler, Magnolia Pet. 17.
2-2s-8w Gilworth, Pace et al 1-A.
12-2s-8w Fobb, Commercial Pet. 7-A.
Fobb, Commercial Pet. 5-B.
17-2s-7w Carter, Magnolia Pet. 6.
19-2s-7w Isaacs, Mid-Kansas Oil 7.
29-2s-7w Bristowe, Womack 1-A.
8-2s-6w Armstrong, Gant et al 2.
3-2s-5w Brown, Magnolia Pet. 2.
14-2s-5w Holden, Magnolia Pet. 1.
31-2s-5w Halloway, Homaokla Oil 1.
11-2s-4w Yates, Magnolia Pet. 1.

Shut Down

29-2n-5w Rose, David Montgomery 1.
31-1n-8w Hinser, Laco-Kinsey 1-A.
32-1s-8w Shelton, Gant et al 13.
34-1s-8w Burke, David Malernee 1.
35-1s-8w Hanson, Brannon et al 1.
5-2s-8w Miller, Empire G. & F. 7.
Rigs, 11; wells drilling, 44; total, 55.

PONTOTOC AND GARVIN COUNTIES

Rigs

4-4n-6e Daggs, Healdton O. & G. 1.
16-1n-3w Mauldin "A," Magnolia Pet. 7.

Wells Drilling

28-5n-5e Copeland, La Salle et al 1.

21-4n-1w Florence, Bedman et al 1.
14-4n-7e Norris & Beck, Howarth O. & G. 1.
35-3n-2e Franklin, T. P. C. & O. Co. 1.
32-3n-3e Hensley, Mid-Cont. Pet. 1.
16-1n-3w Harris, Magnolia Pet. 7.
Bailey, T. P. C. & O. Co. 1-A.
17-1n-3w Deryden, The Texas Co. 10.
Deryden, Carter Oil 5.
5-1n-1e Christner, L. D. Jones 1.
Shut Down
31-5n-5e Lewis, La Salle et al 1.
25-5n-6e Patterson, Gillette & Krueger 1.
34-5n-6e Roy, T. P. C. & O. Co. 3.
Nelson, Boles & Smith 1.
5-4n-5e Starritt, Bronson & Doyle 1.
17-4n-6e Witherspoon, American O. & R. 2.
18-4n-6e McClure, Bryan & Gillette 1.
28-4n-7e Faulkner, Hughes et al 2.
10-3n-3e Hattle, Heath & Bauman 1.
15-1n-3w Wyatt, Magnolia Pet. 4.
17-1n-3w Deryden, The Texas Co. 9.
18-1n-3w Deryden, Simms Oil 1.
Rigs, 2; wells drilling, 22; total, 24.

CARTER COUNTY
Rigs
34-1s-3w Cruce, Schermerhorn 1.
23-2s-3w Williams, Magnolia Pet. 7.
32-2s-3w Feagin, Sturm Drilling Co. 1.
18-2s-2w Pierce, Athey-Lively et al 1.
5-3s-2w Cobb, Atlantic O. P. 3.
Cobb, Merrick-Kirk 4-A.
9-4s-2w Hewitt-Walker, Humble O. & R. 20.
28-5s-1e Westheimer, Amerada Pet. 11.
Wells Drilling
19-1s-3w Winters, Magnolia Pet. 1.
Hardin, Magnolia Pet. 3, 4.
Jordan, Humble O. & R. 3.
34-1s-3w Hernstadt, Gilmer 1.
Fish, Magnolia Pet. 2.
Snyder, Magnolia Pet. 1.
22-2s-3w Kimbrell, Carter Oil 1.
Carpenter, Twin State Oil 1, 2.
Carpenter, Humble O. & R. 6.
Calvery, Wirt Franklin 1.
Lohman, Magnolia Pet. 7.
24-2s-3w Smith, Magnolia Pet. 11.
25-2s-3w Jefferson, Twin State Oil 7.
26-2s-3w Swartz, Magnolia Pet. 1.
7-2s-2w Pierce, Coline Oil 7.
15-2s-2w Johnson, Magnolia Pet. 1.
30-2s-2w Ellis, Truman Oil 7.
1-3s-2w Rollins, Magnolia Pet. 1.
8-3s-2w Watkins, Cameron-Noble 2.
Moyer, Humble O. & R. 2.
Watkins, Schermerhorn et al 3.
9-4s-2w Lowery, Simpson & Fell 2.
Hazel-Vorhees, Simpson & Fell 3.
Hewitt-Walker, Humble O. & R. 18, 19.
22-4s-2w Dillard, Baker-Strawn 12.
22-4s-1w Black, Humble O. & R. 1.
1-4s-3e Barnes, Humble O. & R. 1.
13-5s-3w Beal, Wickenhiser 1.
20-5s-1e Baptiste, Amerada Pet. 21.
Farve, Amerada Pet. 21.
28-5s-1e Clay, Amerada Pet. 20.
34-5s-1e Ledbetter, Amerada Pet. 1.
Shut Down
19-1s-2w Morris, McGahee 1.
21-2s-3w McClain, Skelly Oil 1.
6-2s-2w Higgins, Coline Oil 3.
27-3s-2e Brown, Home Oil 1.
16-4s-1e Bishop, Felmlee et al 1.
Rigs, 8; wells drilling, 40; total, 48.

JEFFERSON COUNTY
Rig
33-6s-5w Seay, Gypsy Oil 10, 11.
Wells Drilling
34-6s-5w Seay, The Prairie O. & G. 6, 5.
25-4s-6w Howard, Pure Oil 1.
36-5s-4w Woodworth, Godley Oil 1.
26-6s-6w Springer, Clark & Cowden 1.
33-6s-5w Indian, A. C. Brown 1.
Seay, Hambro-Humble Oil 6.
Jones, Carter Oil 1.
Seay, Gypsy Oil 9.
34-6s-5w Seay, Staley et al 1-A.
Indian, Humble-Hambro Oil 4.
18-7s-5w Busby, Gypsy Oil 1.
Shut Down
21-5s-6w Cowden, Kelsey et al 1.
34-5s-6w Major, Oasis Oil 1.
4-6s-5w Brown, Ely et al 1.
34-6s-5w Seay, Carter Oil 4.
Indian, Humble-Hambro Oil 3.
Rigs, 2; wells drilling, 17; total, 19.

MISCELLANEOUS COUNTIES
Rigs
Harper County—
30-29-22w ——, D. T. Water 1.
Woodward County—
4-23-17w Nordyke, Diamond Drlg. Co. 1.
Logan County—
11-18-3w Matthews, Santrock Drlg Co. 1.
Texas County—
21-4n-14e ——, Wilcox O. & G. 1.
Caddo County—
1-5n-9w Funk, Cont. Diamond Core Drlg. Co. 1.
3-5n-9w Surbeck, Magnolia Pet. 7.
6-5n-9w Culp, Briscoe & Hall 5.
Comanche County—
36-2n-10w School No. 10, Magnolia Pet. 1.
30-2n-9w Indian, Continental Oil 2.
Price, Magnolia Pet. 4.
4-3n-10w Sanders, Cook & Graham 1.
Tillman County—
13-1s-18w Snelling, Oasis Oil 1.
Marshall County—
24-5s-5e Arbuckle, United 8 Oil 3.
19-5s-6e Neff, United 8 Oil 3.
Love County—
12-9s-1e Gray, Smyer & Stein 1.
McIntosh County—
17-10-14 Lynch, Gypsy Oil 2.
15-11-26e Fee, H. B. Lyman 1.
Wells Drilling and Shut Down
(Shut down wells indicated by *)
Alfalfa County—
8-28-12w ——, W. J. Hartley & C. W. Green 1.
Ellis County—
32-24-24w Meehan, Utility O. & G. 1*.
Major County—
36-22-14w Cheyenne Basin, The Texas Co. 1*.
36-21-11w Gray, Frantz & Slick 1*.
Dewey County—
7-18-15w Chronister, Meyers 1*.
Logan County—
28-18-4w Moore, Franklin Oil Association 1.
33-18-3w Quier, Haley & Pioneer Pet. 1.
21-18-2w Donahue, J. L. Donahue et al 1.
28-16-1w Lair, Blackford O. & G. 1*.
Kingfisher County—
27-16-6w ——, McKenna & Crawford 1.
17-15-6w Creaves, Chi Oil & Nicholas 1*.
Blaine County—
21-15-10w Eklemier, Okoma Oil 1*.
Texas County—
28-3n-13e ——, Wilcox O. & G. 1.
Oklahoma County—
17-14-2w Lynn, Von Stein & Hagerling 1*.
9-14-1w Miller, Maxine Pet. 1.
10-12-3w Edwards, Cromwell O. & G. 1.
Canadian County—
34-13-9w Dawson, Thos. Revelle 1*.
2-13-8w Setter, Carroll & Zweicher 1*.
29-11-7w Sanders, O. D. Jones 1*.
Pottawatomie County—
26-11-4e Kline, Sikes, Kilgore & Shaffer 1.
3-11-6e Allen-augh, The Texas Co. 1.
25-10-4e Midgett, Pierce Oil 1*.
28-10-4e Toney, Central Nat'l. Oil 1*.
24-8n-4e Stoner, Maude Oil 1*.
13-7n-4e Vienx, Magnolia Pet. 1.
15-7n-4e Standridge, Darby Pet. 1.
19-7n-4e Neghan, Croxton & Bucklin 1.
10-6n-2e MacCahey, Davis Detrick et al 1*.
20-6n-4e Hibbard, Croxton-Wrightsman et al 1.
4-5n-5e Fiddler, Halmond Osmond et al 1*.
Cleveland County—
31-10-4w Holland, Garr Oil 1*.
Beckham County—
24-9n-25w ——, W. H. Sheldon 1.
4-8n-25w Roberts, Magnolia Pet. 1.
25-8n-22w McGee, W. R. Duke 1*.
Caddo County—
31-6n-9w Abernathy, English Drlg. Co. 2.
29-5n-12w Galbreath, W. J. Hartley 1*.
12-5n-9w Royce, Diamond Drlg. Co. 1.
Comanche County—
16-3n-10w School, Cochran et al 1-A.
26-3n-10w Scheetz, Sam Wrightsman et al 1*.
33-3n-10w Hendricks, Mid-Kansas Oil 1.
10-2n-10w Spitler, Danciger Oil 1.
24-2n-10w Schultz, Cardinal Oil 1.
27-2n-10w Blair, J. I. Howard 1.
6-2n- 9w Austin, Harry Hanbury 1.
20-2n- 9w Coady, Texhoma O. & R. 1.
30-2n- 9w Indian, Westheimer & Daube 2*.
29-1n-12w Bentley, Bentley et al 1.
27-1n-10w McVicar, Consolidated Oil 1.
30-2n- 9w Price, Magnolia Pet. 5.
Indian, Carter Oil 1.
Price, Bridwell & Heydrick 1.
Jackson County—
15-1s-23w Snodgrass, J. R. Abernathy 1*.
Tillman County—
33-4s-15w Dougherty, C. & O. Drlg. Co. 1.
1-5s-15w Riverbed, Tipton et al 1.
Atoka County—
28-2s- 9e Underwood, Wapanucka Dev. 1.
17-4s-11e Dabney, Hanson et al 1.
Marshall County—
10-5s-5e Griffin, W. E. Ramsey 1.
17-5s-5e Sacra, Kennedy Drlg. 1*.
24-5s-5e Arbuckle, United 8 Oil 4.
25-5s-5e Arbuckle, Humble O. & R. 1.
30-5s-6e Marshall, United 8 Oil 1.
Love County—
28-6s-2e Fee, Westheimer 1.
11-7s-2e Wilson, Driller Syndicate 1*.
McCurtain County—
12-1s-26e Haun, O'Shaugnessy & Haun 1.
Latimer County—
7-5n-18e Hunt, S. & F. Pet. 1.
10-6n-21e Young, J. S. Cochran 1.
Pittsburg County—
29-6n-13e Townsend, E. T. Richards 1*.
Sequoyah County—
33-11-25e Powell, Eureka Oil 1.
McIntosh County—
4-10-13e Greenwood, G. F. Haun 1.
Rigs, 17; wells drilling, 69; total, 86.

KANSAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Butler	14	300	6	0
Chautauqua and Elk	15	135	4	5
Cowley	7	3,174	6	0
Greenwood	40	3,755	10	1
Miscellaneous	19	595	9	1
Total Dec.	105	7,959	35	7
Total Nov.	192	14,114	53	11
Difference	87	6,155	18	4

Summary of Rigs and Wells Drilling

County—	Rigs	Drg.	Ttl.
Butler	13	50	63
Chautauqua and Elk	3	23	26
Chase	0	11	11
Cowley	12	44	56
Greenwood	26	81	107
Montgomery	0	20	20
Russell	1	18	19
Sedgwick	0	8	8
Sumner	0	13	13
Woodson	0	7	7
Miscellaneous	14	105	119
Total Dec.	69	380	449
Total Nov.	93	339	432
Difference	24	41	17

BUTLER COUNTY
WELLS COMPLETED
20-24-8e Henley, White Eagle el al 1... dry
29-26-8e Drum Bitler, Federal Oil 5.... 35
Drum Bitler, John Rogers 10.. 30
30-26-8e Drum Bitler, Cowpuncher Oil 1 50
31-26-8e Drum Bitler, Miller et al 1.... dry
16-27-6e Blankinship, Phillips Pet. 1... 50
34-27-7e Blunt, Greenland Oil 1..... 85
6-28-7e Farmer, Sheldon, Howard et al 1 ..... dry
32-26-6e Palmer, Sparta Drlg. Co. 1.... 25
6-27-8e Lucas, John Rogers 4..... dry
19-25-5e Pirtle, Fleeger et al 9..... 25
30-25-5e Atkins, Empire G. & F. 33..., dry
25-27-5e Sipe, Hartman & Skaer 1..... dry

Wells Completed..... 14
Production 300
Dry 6

CHAUTAUQUA AND ELK COUNTIES
17-29-10e Taylor, Elk County Pet. Co. 1 gas
22-31-10e Rorick, Gillespie 4..... 15
23-31-10 Webb, Empire G. & F. 1..... 40
24-33-9e Anderson, Renfru et al 1..... dry
3-30-9e Denton, Watchorn O. & G. 8 dry
16-31-9e Longston, Anderson Bros. 3.. gas
22-31-10 Webb, Theta Oil 3..... 30
25-31-10 Kay, Frazier et al 1..... gas
27-31-10 Walker, Theta Oil 2..... 25
Walker, Theta Oil 3..... gas
29-31-10 Johns, Neeley O. & G. 1..... 25
22-31-10 Rorick, Gillespie 5..... dry
12-29-8e Porter, Roth & Co. 12..... dry
16-21-9e Stiles, Anderson Bros. 1.... gas

Wells completed 15
Production 135
Dry 4
Gas 5
Gas Production 13,250,000

COWLEY COUNTY
19-32-3e Waite, Carter Oil 7..... 420
19-32-5e Zeion, Mummert Drlg. Co. 1... 40
21-33-3e Nelson, W. Phillips & Marland 1..... 220
W. Snyder, W. Phillips & Marland 5..... 115
21-30-6e Robbins, Lewis Oil 7..... dry
21-33-3e Nelson, W. Phillips & Marland 3..... 350
Bryan, W. Phillips & Marland 1 75
21-31-4e Waite, Derby Oil 1 ..... dry
21-33-3e Nelson, W. Phillips & Marland 16 500
Nelson, W. Phillips & Marland 17..... 534
28-32-3e Hoverstock, Miss. Valley Oil 1. dry
29-32-3e Kelloge, Wentz et al 1..... dry
17-33-3e Thurlow, W. Phillips & Marland 7..... 420
21-33-3e Nelson, W. Phillips & Marland 11..... 150
21-33-3e Nelson, W. Phillips & Marland 2..... 350
16-33-6e Bain, Terrell et al 1..... dry
6-33-8e Shaffer, Phillips Pet. 1 ..... dry

Wells completed 17
Production 3,174
Dry 6

GREENWOOD COUNTY
12-22-10 De Malorie, Davis, Hazlett et al 8 200
1-23-9e Skelly-Shambaugh, Skelly Oil 1 150
2-23-9e Shambaugh "B," Greenland Oil 6 300
15-23-9e Skelly-Teter, Skelly Oil 2 .... dry
19-23-9e Morris, Phillips Pet. 3..... 150
27-23-10 Thrall "B," Roth & Farout 3 20
24-26-9e Weirshing, Miller et al 1..... 75
9-26-11 Wilson, Moore, et al 1..... dry
32-22-10 Banard, The Texas Co. 1..... dry
11-22-11 Kipfer, Tidal Oil 6..... 200
15-22-11 Bartlett, Empire G. & F. 3.. 105
Pees, Empire G. & F. 5..... 75
24-23-8e Scott, Empire G. & F. 6 150
25-23-8e Taylor, Greenland Oil 2..... 200
25-23-8e Scott, Robertson, Hayes et al 8 200
19-23-9e Morris, Phillips Pet. 6..... 30
Morris, White Eagle & McGinnis 2 300
9-23-10 Slaughton, Roth & Farout 1... 30
18-23-10 Sowin, White Eagle O. & R. 1. dry
27-24-9e Hill, Lerward Pet. 1..... dry
7-24-12 Scott, Foster et al 1..... 20
12-25-8e Birkett, Roth & Farout 7 20
27-25-11 Wilson, Cross Oil 1..... dry
36-25-11 Baird, Roth & Farout 1..... gas
24-26-9e Weirshing, Beacon Oil 2 ..... dry
16-27-9e Baldwin, Roth & Farout 1... dry
30-22-11 Coffman, Pryor & Lockhart 2 dry
3-23-9e Noler, Phillips Pet. 3..... dry
16-23-9e Teter, Empire G. & F. 29..... 150
19-23-9e Morris, Phillips Pet. 5..... 50
12-25-8e Welch, Lassen et al 3..... dry
20-22-10 Browning, Sinclair Oil 29..... 200
Browning, Sinclair Oil 30 200
Browning, Sinclair Oil 31..... 200
11-22-11 Kipfer, Empire G. & F. 10..... 150
25-23-8e Dales "B," Mission Oil 2..... 275
Dales "B," Mission Oil 3..... 125
19-23-9e Morris, Phillips Pet. 4 150
9-23-10 Stoughton, Roth & Farout 1.. 30
36-25-11 McKenzie, Roth & Farout 1.. dry

Wells completed..... 40
Production 3,755
Dry 10
Gas 1
Gas production 2,500,000

MISCELLANEOUS
Lyons County—
32-21-12 Childers, Landon et al 3..... 75
Perdroja, Phillips Pet. 1..... 75
33-21-12 McIlvane, Phillips Pet. 2.... 50
30-21-10 Jones, Transcontinental Oil 1.. 20
36-21-11 Soule, Houx et al 1..... dry
McPherson County—
1-19-5w Erickson, Transcontinental Oil 1 ..... dry
Marion County—
8-22-4e Speir, John Markham 6..... dry
Chase County—
35-22-8e Crowley, Davis, Hazlett et al 1 dry
35-22-9e Shambaugh, Selby O. & G. 4... 35
Shambaugh, Selby O. & G. 5... 15
Coffey County—
10-20-17 McMullen, Bruen et al 1..... dry
Rice County—
2-21-6w Walstein, Youker et al 1..... 210
Russell County—
9-12-15w Sutton, Streeter, Stearns & Yankee 9..... 125
7-12-15w Oswald-Valerius, Valerius O. & G. 8..... dry
29-11-15w Abbott, Mid-West Ref. 31..... dry
Wilson County—
20-30-16 Benedict, The Prairie O. & G 17 gas
Woodson County—
14-25-13 Mason, McCann & Johnson 1.. dry
33-23-14 Headley, Iowa-Kansas Dev. 1.. 10
Sedgwick County—
19-29-1w Duncan, Curtiss et al 1..... dry

Wells completed 19
Production 595
Dry 9
Gas 1
Gas Production 15,000

BUTLER COUNTY
Rigs
7-23-8e Flint, Donnelly et al 1.
28-25-6e Doornbes, Jon Nathan et al 1.
32-25-7e Collins, Liggett et al 1.
32-26-6e Schoenrock, Mason & Ralston 2.
27-26-7e Young, Young Farm Oil 4.
11-27-5e Knutson, Travis et al 6.
33-27-5e Clark, Reynolds et al 1.
33-27-7e Laughton, John Rogers 2.
34-27-7e Blunt, Greenland Oil 2.
13-28-6e McCraig, Farr et al 1.
14-28-6e Hamilton, Miss. Valley Oil 1.
21-29-6e Steinhoff, Gardon & White Eagle 1.
32-27-7e Barnhill, Sinclair Oil 2.
Wells Drilling
31-23-8e Walkins, Greenland Oil et al 1.
32-23-8e Harsh, Skelly Oil 1.
13-25-3e Wilson, Skelly Oil 2.
14-25-3e Drohen, Skelly Oil 1.
30-25-5e Murry, Empire G. & F. 29.
19-26-5e Houston, Empire G. & F. 14.
9-26-6e Fuller, Polhamus & Smith 1.
32-26-6e Palmer, Lewis Oil 1.
16-26-7e Carson, Liggett et al 1.
27-26-7e Wilhite, Phillips Pet. 1.
Wilhite, White Eagle O. & R. 1.
28-26-7e Huntley, Brennon, Wixon et al 1.
32-26-7e Huntley, Hoyt et al 1.
29-26-8e Drum Bitler, Federal Oil 4.
Drum Bitler, Federal Oil 6.
25-27-4e Skaer, Magnolia Pet. 2.
35-27-4e Skaer, Empire G. & F. 13.
8-27-6e Brassey, Richmond Drlg. Co. 1.
19-27-6e Bollner, Hoyt et al 7.
22-27-6e Stearns, Wentz et al 1.
7-27-7e Seward, Ray et al 1.
22-27-7e Tobler, Amerada Pet. 1.
Barnhill, Sinclair Oil 1.
27-27-7e Tobler, Empire G. & F. 1.
Kruse, Phillips Pet. 1.
Truesdale, Phillips Pet. 1.
28-27-7e Jobe, Greenland Oil 1.
33-27-7e Laughton, John Rogers 1.
25-28-6e Tavender, White Eagle O. & R. 1.
1-28-7e Simpson, Ballere et al 1.
9-28-7e Lemon, Marland Oil 1.
11-28-7e Hurt, Basom, Boyle et al 1.
15-28-7e Sensenbaugh, Atlantic Prod. Co. 2.
16-28-7e Dunn, Allen et al 1.
22-28-7e Nelson, Mid-Kansas Oil 1.
23-28-7e Ramp, Martle Oil 1.
12-29-6e Lamenyon, Tobin et al 1.
33-29-8e Hanna, Roth & Co. 7.
Shut Down
14-23-7e De Ford, Ramsey et al 1.
19-23-8e Sturgeon, Tom Miller et al 1.
1-24-2e Joseph, Vickers Pet. 1.
36-24-4e Barkmeyer, Robinson et al 1.
12-26-5e Cowles, Frank Allen & Steiner 1.
27-26-7e Wilhite, Brennon, Wixon et al 2.
29-26-8e Drum Bitler, Federal Oil 7.
Drum Bitler, John Rogers 3.
24-27-4e Weidline, Weidline et al 1.
5-27-6e Beedles, Branson et al 1.
7-27-8e Nichols, Connell et al 1.
22-28-6e Petteet, John Sharp 1.
Rigs 13; wells drilling 50; total 63.

CHAUTAUQUA AND ELK COUNTIES
Rigs
30-30-10 Snodgrass, Tidal-Osage Oil 2.
28-31-10 Johns, Landon et al 1.
29-31-11 Welch, Gillespie 1.
Wells Drilling
15-32-10 Hazelton, Manning, Street et al 1.
20-32-10 Gibson, Watchorn O. & G. 1.
31-32-10 McKown Brockwell O. & G. 1.
13-29-8e Porter, Empire G. & F. 4.
33-29-9e Parkins, Barber & Lemon 1.
3-30-9e Tate, Conley et al 5.
Mullendore, W. A. Reed 2.
16-31-9e Longton, Anderson Bros. 2.
22-31-9e Wilber, Empire G. & F. 1.
9-31-10 Eyman, Litterl et al 1.
14-31-10 Chaffine, Pure Oil 8.
23-31-10 Webb, Theta Oil 4.
27-31-10 Walker, Gillespie 1.
Walker, Theta Oil 4.
22-31-11 Finley, Abel, Byington et al 3.
Shut Down
5-33-10 Humphreys, Dunn et al 1.
7-33-10 Briggs, Noble O. & G. 1.
5-33-12 Fish, Garner et al 1.
28-28-11 Gibson, Sharpless et al 1.
4-29-9e Britton, McCullough & Talbot 1.
34-29-12 Hawkins, Theta Oil 1.
31-30-10 Cummings, Indian Territory Ill. Oil 1.
14-31-10 Webb, Southwestern Gas 10.
Rigs, 3; wells drilling, 23; total, 26.

CHASE COUNTY
Wells Drilling
32-18-7e Lipps, Preston & Pasewalk 1.
13-20-8e Brant, Hammond Wrd. et al 1.
19-21-6e Griffith, Liggett et al 1.
25-21-9e Atyac, Dingee, Pryor & Lockhart 1.
29-22-8e Bardley, White Eagle & Connell 1.
1-23-9e Evans, Dingee, Pryor & Lockhart 1.
17-22-9e Eggan, Reed et al 1.
23-22-9e Crosley, Dingee, Callahan et al 1.
35-22-9e Shambaugh, Selby Oil 6.
36-22-9e Shambaugh, Mid-Kansas Oil 3.
Shut Down
19-19-8e Holsinger, Alters et al 1.
Wells drilling, 11.

COWLEY COUNTY
Rigs
10-31-3e Shaffer, Benedum & Trees 1.
21-31-4e Goodrich, Twin State Oil 1.
6-31-6e Eastman, Southwestern Pet. 10.
19-32-3e Carson, T. B. Slick 3-A.
7-32-5e Crosby, Ark. Fuel Oil 5.
19-32-5e Boyd, Duffield et al 2.
Bardlow, J. A. Hull 3.
21-33-3e I. Nelson, W. Phillips & Marland 4.
28-33-3e Caldwell, W. Phillips & Marland 11.
7-33-7e Riding, Brown Bros. 1.
18-33-7e Smith, Dorie Oil 1.
16-34-5e Hunt, Phillips Pet. 1.
Wells Drilling
20-30-5e Erickson, Ark. Fuel Oil 1.
32-30-6e Knollingberg, Titus et al 1.
28-30-8e Ferguson, Hazlett et al 1.
1-31-3e Curry, Marland Oil 1.
31-31-5e Smith, Tree Oil 4.
20-31-5e Sycles, Roth & Farout 1.
5-31-6e Eastman "A," Empire G. & F. 2.
8-31-6e Stout, Deal et al 3.
19-32-3e Waite, Carter Oil 8.
Waite "B," T. B. Slick 1.
Carson, T. B. Slick 6.
25-32-4e McFadden, Buckeye Oil 1, 2.
6-32-5e Dugeon, Ark. Fuel Oil 2.
19-32-5e Boyd "A," Duffield et al 1.
30-32-5e Carlisle, Lewis Oil 1.
16-33-3e Hunt, Gypsy Oil 1.
17-33-3e Thurlow, W. Phillips & Marland 6.
19-33-3e Holman, Marland Oil 2.
Heskett, Slick & Marland 3.
21-33-3e Bryan, W. Phillips & Marland 2.
W. Bryan, Waite Phillips & Marland 3, 6.
Hunt, Marland Oil 2.
Hunt, Derby Oil 1.
28-33-3e Wycoff, Gypsy Oil 1.
11-33-4e Beard, White Eagle et al 1.
24-33-6e Sandstrum, Little Martha Oil 2.
16-34-3e Chaplin, Roxana Pet. 1.
17-34-3e Chenoweth, Elwell et al 1.
22-34-3e Kimmell, Roxana Pet. 1.
15-34-4e Pollock, Bunnell et al 1.
24-34-6e Day, R. E. Pet. 1.
7-34-8e Sawer, McKnab et al 1.
Vickery, Roxana Pet. 1.
18-35-3e Gaily, Roxana Pet. 1.
16-35-4e Hollingworth, Muddy Oil 1.
5-35-5e Stearling, Springstead & Overlease 1.

Shut Down
32-30-5e Withers, Pettee & Banks 1.
7-30-6e White, Barnson, et al 1.
14-30-6e Hulmes, Gray, Hewey et al 1.
28-31-4e Emery, Trees Oil 2.
4-31-5e Elliott, Boxer et al 1.
29-32-7e Bronson, W. H. Hammill 1.
Rigs, 12; wells drilling, 44; total, 56.

GREENWOOD COUNTY
Rigs
8-22-10 Pixlee, Theta Oil 6.
12-22-10 De Malorie, Davis, Haslett et al 9.
20-22-10 Browning, Sinclair Oil 33, 34.
24-22-10 Troxell, Troxell et al 1.
29-22-10 Fratner, Skelly Oil 1.
Prather, The Texas Co. 3.
Prather, Titus et al 15.
30-22-11 Coffman, Phillips Pet. 4.
25-23-8e Craft Taylor, Greenland Oil 4, 5.
25-23-8e Dales "B," Mission Oil 5.
Scott, Hayes, Robertson et al 10.
Dales "B," Mission Oil 6, 7.
2-23-8e Shambaugh "B," Greenland Oil 7.
1-24-9e Cartwright, Roth, Farout & Mission Oil 10.
26-24-11 Johnson, Cooper et al 1.
18-24-12 Scott, Stark et al 1.
12-25-8e Birkett, Roth & Farout 8.
20-25-9e Ladd, Mid-Kansas 6.
13-26-9e Life, Crown Central Pet. 1.
23-26-9e Miles, Flintridge Pet. 2.
24-26-9e Weirshing, Beacon Oil 3.
28-26-13 Ingersoll, Maitland Oil 1.
23-27-9e Lilly, Gillespie 1.
Wells Drilling
2-22-10 Bradfield, Syndicate Oil 1.
6-22-10 Atyeo, Empire G. & F. 1.
8-22-10 Pixlee, Theta Oil 5.
12-22-10 Austin, Syndicate Oil 1.
Warrensburg, Phillips Pet. 5.
16-22-10 Bang, Rhodes, Abel et al 1.
17-22-10 Browning, Theta Oil 15.
20-22-10 Browning, Sinclair Oil 32.
20-22-10 Prather "A," Skelly Oil 1.
29-22-10 Prather, The Texas Co. 2.
Prather, Titus et al 10, 21.
30-22-10 Prather, Phillips Pet. 3.
11-22-11 Kipfer, Tidal Oil 7.
14-22-11 Duby, Empire G. & F. 3.
Killison, Empire G. & F. 5.
15-22-11 Bartlett, Empire G. & F. 4.
18-22-11 Clopton, Mid-Continent Pet. 5.
19-22-11 Greenwood, Empire G. & F. 2.
30-22-11 Coffman, Phillips Pet. 3, 5.
Pees, Tidal Oil 1.
33-22-11 Westcott, York State Oil 7.
4-22-12 Frankhouser, Simmons et al 1.
6-22-12 Waymire, Lewis Oil 1.
24-23-8e Scott, Empire G. & F. 7, 8.
25-23-8e Craft Taylor, Greenland Oil 3.
Dales "B," Mission Oil 4.
Scott, Hayes, Robertson et al 9.
26-23-8e Mosby, Phillips Pet. 1.
2-23-9e Shambaugh "A," Greenland Oil 5.
10-23-9e Green, Greenland Oil 13, 16, 19.
10-23-9e Noler, Tidal Oil 2.
14-23-9e Green, Murphy et al 1.
16-23-9e Teter, Empire G. & F. 30.
19-23-9e Morris, Empire G. & F. 1.
Morris, Mission Oil 6.
Norman, Phillips Pet. 2, 7, 8.
Morris, White Eagle et al 3, 4, 5.
20-23-9e Cane, Phillips Pet. 1.
21-23-9e Teter, Minnehoma Oil 2.
26-23-9e Tster, Darby & Simmons 4.
14-23-10 Winegar, Connell et al 1.
22-23-10 Scott "A," Roth, Farout & Mission 3.
27-23-10 Thrall, Roth, Farout & Mission 4.
31-23-10 Martindale, Mid-Kansas 33.
3-23-13 Souder, Theta Oil 10.
4-23-13 Inthurm, Haverhill Pet. 2.
15-23-13 Shadel, Mid-Continent Pet. 7.
2-24-8e Burk, Phillips Pet. 1.
23-24-9e Halverson, Leonard Pet. 4.
27-24-9e Lill, Leonard Pet. 2.
Wiggins, Polhamus et al 3.
23-24-10 Edwards, Jno. Edwards et al 1.
6-24-11 Freeman, Hubbard et al 1.
19-24-11 Freeman, Paul Smith et al 1.
30-24-11 Wiggins, McGinnis 1.
31-24-11 Warner, Peerless Oil Co., et al 1.
26-24-12 Hughes, Foster Oil 2.
11-25-9e Wallace, National Ref. 1.
19-25-9e Ladd, Mid-Kansas Oil 4.
20-26-9e Trigg, Huff et al 1.
23-26-9e Weirshing, Miller et al 1.
26-26-9e Porter, Comment Oil 1.
3-26-12 Schoellenbeck, La Rue 1.
24-27-8e Lewis, Empire G. & F. 1.
Shut Down
12-22-11 Voorhees, Empire G. & F. 2.
19-22-11 Greenwood, Simmons et al 2.
22-22-11 De Malorie "C," York State Oil 5.
22-23-12 Noll, McGinnis & Parish 1.
1-24-9e Marshall, Ark. Fuel Oil 14.
10-25-5e Robbins, Cruzan & Parker 1.
22-26-9e Duke, Smith, Carlson & Marshall 2.
8-27-10 Nelbrach, Morgan et al 1.
Rigs, 26; wells drilling, 81; total, 107.

MONTGOMERY COUNTY
Wells Drilling
23-33-14 Miller, Morgan et al 1.
11-33-16 Zutz, Wilkins et al 1.
30-33-16 Davis, Weible et al 1.
9-34-14 Eaton, Gillespie 1.
28-34-14 Owens, Phillips Pet. 1.
31-34-15 Reed, Connell et al 1.
5-35-15 Taylor, Keystone Oil 1.
12-35-16 Wilson, Tex-O-Kan Oil 1.
Shut Down
31-31-14 Faler, Ramler et al 1.
21-32-13 Neiman, Dunn et al 1.
36-32-14 Dryhead, Irish et al 1.
5-32-16 Brinkman, Cowell 1.
35-32-16 Wyberger, Bloom et al 1.
29-32-17 Helium, Earl & Overlease 1.
12-33-16 Painter, Superior Oil 1.
35-33-16 Felts, Voice & Tabor 1.
4-33-17 Hall, Townzell et al 1.
30-33-17 Bunk, Brown & Wolf 1.
1-35-16 City of Coffeyville, Ed Kerns 1.
4-35-17 Walker, Gallowye & Roberts 1.
Wells drilling, 20; total, 20.

RUSSELL COUNTY
Rigs
32-11-15w Dodge, Derby et al 2.
Wells Drilling
13-11-13w Pospishal, Krueger et al 1.
19-11-15w Dodge, Link Syndicate 1.
32-11-15w Booth, Snowden & McSweeney 1.
5-12-15w Sutton, Derby Oil 5.
Kollman, Tom Johnson 4, 5.
Sutton, Valerius O. & G. 6, 7.
8-12-15w Oswald Mid-West Refg. 8, 21, 24.
Oswald-Valerius, Valerius O. & G. 11, 12.
17-12-15w Oswald-Valerius, Valerius O. & G. 9, 10.
18-12-15w Ed Oswald, Skelly Oil 2.
30-12-15w Austin, Mid-West Refg. 1.
Rigs, 1; wells drilling, 13; total, 19.

SEDGWICK COUNTY
Wells Drilling
17-29-1e Howell, Carr, Hartman & Skaer 1.
32-29-2w Nickerson, W. Phillips 1.
21-29-3w Webb, Allison & Fitswilliams 1.
Shut Down
6-25-1e Poff, Boyle, Preston & Tack 1.
9-25-2e Harrison, Smith & Keller 1.
34-26-1e Jaden, Wichita O. & G. 1.
7-26-2e Mills, Lamson et al 1.
2-29-2e Fleming, Higgins 1.
Wells drilling, 8; total, 8.

SUMNER COUNTY
Wells Drilling
9-30-1w Steavinson, Champlin Refg. 1.
12-30-1e Waggoner, McKanna et al 1.
8-30-2w Lotta, Champlin Refg. 1.
36-30-2w Riner, Cosden O. & G. 1.
17-32-3w Miller, Roxana & W. Phillips 1.
24-32-2w Conrad, Slick et al 1.
24-33-2e Holman, Marland Oil 1.
Holt, Phillips Pet. 1.
4-34-1w Wicher, Cosden O. & G. 1.
35-34-1w Roselle, Shawver et al 1.
34-34-2e McEowen, The Prairie O. & G. 1.
Wells Shut Down
35-31-4w Stewart, Sparta Drlg. Co. 1.
21-33-2e Rutter, Roxana Pet. 1.
Wells drilling, 13; total, 13.

WOODSON COUNTY
Wells Drilling
28-25-15e Pengray, Powell et al 1.
Shut Down
9-25-14e O'Neil, Fields et al 1.
13-25-14e Hunt, Alters et al 1.
4-26-14e Louder, Herman & Oglesby 1.
13-26-14e Daniels, Burford & Brimm 1.
14-26-14e Underwood, Brinegan et al 1.
29-26-17e Clark, Equity Oil 1.
Wells drilling, 7; total, 7.

MISCELLANEOUS
Rigs
Coffey County—
29-19-16e McFadden, Burge et al 1.
Comanche County—
23-31-18w Starlock, I. M. Rupard et al 1.
Graham County—
17-10-24w Baker, Gruin & Shriler 1.
Lyon County—
16-20-10e Reese, Leonard et al 1.
24-21-10e Rossillion, Super Six Oil 2.
McPherson County—
3-18- 2w Anderson, Fowler et al 1.
Marion County—
29-19- 5e Collins, Frank Allen et al 1.
Morris County—
32-14- 7e Barber, Kline et al 1.
Ness County—
35-16-21w Myersee, Bell & Sarton 1.
Pottawatomie County—
17- 9-12e Stewart, Crawford et al 1.
31- 9-12e Bratschar, Crawford et al 1.
Rice County—
2-19-10w Holtschar, Sparta Drlg. Co. 1.
35-20- 6w Miller, The Prairie O. & G. 2.
34-20- 6w Wood, The Prairie O. & G. 1.
WELLS DRILLING AND SHUT DOWN (Shut Down Wells indicated by °)
Barber County—
14-34-11w Martin, B. B. Brown et al 1.
14-30-12w Kumburg, R. D. Rood et al 1.
Barton County—
31-18-12w Taul, Haynes & Taul 1°.
22-18-13w Everleigh, John Herron 1.
17-19-11w Smith, Huffine et al 1.
Clark County—
20-32-21w Morrison, Watchorn O. & G. 1.
Clay County—
32- 9- 4e Flemming, Boggs et al 1°.
Cloud County—
6-6-4w Murdock, Concordia O. & P. Co. 1°.
Coffey County—
33-22-20 Burnes, W. C. Willy et al 1°.
Dickerson County—
12-14-1e Engle, Marland Oil et al 1.
Edwards County—
7-22-19w Nolterwell, Edwards County Pet. 1°.
Ellsworth County—
24-14-7w Walker, United Pet. 1°.
6-14-9w Kasper, John Herron et al 1°.
Franklin County—
17-16-19e Owens, Smith, Thrice & Fisher 1°.
Geary County—
18-11-5e Stinford, Kirby & Wright 1°.
9-12-6e Wright, Liberty Texas Oil 1°.
30-13-6e Foster, Liberty Texas Oil 1.
Graham County—
23-8-24w Taxon, Keys Bros. & Marine 1.
27-8-25w St. Johns, Gulf Coast Drlg. Co. 1.
Harper County—
19-32-5e Burk, Berry Pet. 1°.
Harvey County—
27-22-2e Symons, S. A. Hunter 1°.
4-23-2e Brandweide, Wentworth Bros. 1°.
Hodgeman County—
19-21-22w Frizzell, Spencer & Marconette 1.
Jefferson County—
13-9-19e Edwards, Northern Counties Oil 1°.
Kingman County—
16-27-7w Richardson, Fleeger & Carter Oil 2.
22-29-6w Bane, Phillips Pet. 1.
4-30-6w Richards, Ozark Drlg. Co. 1.
Labette County—
14-31-17 Sparks, Ark. Fuel Oil 1°.
26-32-17 Wilks, Ark. Fuel Oil 1°.
1-32-20 Thurman, Noble O. & G. 1.
33-32-20 Burnes, W. C. Willy et al 1°.
1-33-17 Hornbeck, Cowell et al 1°.
5-35-20 Lipps, Wantland et al 1°.
Lane County—
11-18-27w Dickinson, Richards Refg. 1.
Lincoln County—
19-11-6w Stone, Scott & Collins 1°.
22-11-6w Lewis, Pope & Powell 1°.
36-13-7 Paul, United Pet. 1°.
Logan County—
14-14-33w Moffett, Coone et al 1.
Lyon County—
17-21-10 Mackery, Loy & Cheney 1.
32-21-10 Atyac, Southwestern Pet. 1.
34-21-10 Pixlee, Ritchey & Moore 1.
33-21-12 Lauck, Phillips Pet. 2, 3.
Swarts, Phillips Pet. 1.
9-21-13 O'Conner, Fisher Oil 1.
McPherson County—
3-17-2w Anderson, Wynn et al 1°.
29-18-2w Anderson, Waugh & Casey 1°.
Marion County—
22-18-5e Svoboda, Empire G. & F. 1.
8-19-4e Troup, Troup et al 1.
31-20-5e Robinson, Brennon & Wixon 1.
13-21-4e Allison, Sheedy et al 3.
14-21-4e Coyne, Connell et al 1.
24-21-4e Allison, Sheedy et al 4.
32- 2-4e Equity, Morgan et al 1°.
5-22-4e Townsend, Watchorn O. & G. 42.
Mitchell County—
10-7-10w Kyle, Marland Oil 1.
Morris County—
21-17-7e Welcher, Bowmand & Jones 1°.
24-17-9e Cesman, Rock Creek O. & G. 1°.
Nemaha County—
19-3-11e Myers, Nemaha O. & G. 1°.
Osborne County—
10-7-12e Turner, Beasley 1°.
9-10-14 Beeley, Knight et al 1°.
Osage County—
3-15-15 Lease, Baker et al 1°.
27-15-16 Baley, West et al 1°.
8-17-17 Neil, Mull Vit. Dev. Co. 1.
Phillips County—
13-5-18w McKinley, Hood & Craine 1°.
15-5-18w McQueen, Curtis & Frost 1.
Pottawatomie County—
11-10-12 St. Mary, Crawford et al 1°.
Reno County—
10-23-4w Magnuson, Sheldon et al 1°.
5-26-4w Williams, Travis et al 1°.
7-28- 7 Stearns, Frank Hopper et al 1°.
Rice County—
10-18-6w Walker, Jasper & Beschka 1.
1-19-7w Deeds, Pryor & Lockhart 1°
21-20-6w Barnes, Stamey et al 1°.
26-20-6w Johnson, Midland Oil 1°.
35-20-6w Welch, Hippel et al 1.
2-21-6w Jacobson, United O. & R. 1.
Riley County—
26-10-6e Marks, Pawnee O. & G. 1.
20-10-7e Thierer, Youker & Douglas 1°.
Rooks County—
7- 8-20w Saindon, Keys Pet. 1°.
25-10-10w Minx, Fiendless et al 1.
Rush County—
10-18-16w Moore, Morgan & Downing 1°.
Saline County—
29-14-2w Davis, L. S. Johnson 1°.
26-15-2w Shallion, Brown & Woodward 1°.
15-15-4w Holquest, Thrall et al 1°.
Stafford County—
23-21-11w Sifers, King & Langston 1°.
24-22-11w Richardson, Randall & Johnson 1°.
Trego County—
5-11-25w Walsh, Keys Pet. 1°, 2°.
Waubaunsee County—
2-11-11 Kaul, Ramsey Pet. 1.
15-13-12 Henderson, Williams et al 1°.
Wallace County—
12-13-39w Wulfkuler, J. Allen Harvey 1.
Wilson County—
22-28-13 Thompson, Price et al 1°.
7-28-14 Harmon, Culp et al 1°.
29-30-17 Smally, West & Williams 1°.
22-30-16 Benedict, The Prairie O. & G. 18.
Ellis County—
16-11-17w Bemis, Sparks et al 1°.
14-13-18w Unrein, Ellis County Pet. 1.
33-15-20w Murphy, Faier et al 1°.
Rigs, 14; wells drilling, 98; total, 112.

NORTH CENTRAL TEXAS

Summary of Wells Completed

District—	Comp.	Prod.	Dry	Gas
Wichita	30	1,010	14	0
Wilbarger	40	10,210	9	0
Archer	49	2,450	18	0
Young	53	2,240	35	0
Stephens	13	405	4	3
Eastland	8	320	2	3
Brown	16	305	3	0
Reagan	7	4,345	1	0
Wildcats	80	5,835	25	9
Total December	296	27,130	111	15
Total November	315	22,810	126	11
Difference	19	4,320	15	4

Summary of New Work

District—	Rigs	Drg.	Ttl.
Wichita	1	41	42
Wilbarger	9	74	83
Archer	15	66	81
Young	2	22	24
Stephens	8	33	41
Eastland	3	18	21
Brown	3	20	23
Reagan	3	14	17
Wildcats	34	155	189
Total December	78	443	521
Total November	59	407	466
Difference	19	36	55

WELLS COMPLETED

WICHITA COUNTY
Jennings, Apple et al 15-A..... 120
Maer, Magnolia Pet. Co. 31..... dry
Rio Bravo, Magnolia Pet. Co. 51..... 50
Watkins, Magnolia Pet. Co. 8..... 5
Allen, Pet. Prod. Co. 18-B, Allen & Kemp..... dry
Burnett, Texhoma O. & R. Co. 3-M.... 60
Bentley, Texhoma O. & R. Co. 1..... dry
Jennings, Bullington et al 10..... 25
Waggoner Bros., Hammon et al 4..... 65
Maer, Magnolia Pet. Co. 30..... dry
Beaver-Electra, Perkins et al 1..... 180
Allen & Kemp, Straus et al 1-B..... dry
Birk, Firsher et al 2..... 20
Lowrance, Patterson et al 1..... dry
Bentley, Texhoma O. & R. Co. 1..... dry
Fisher, Biggs Oil Co. 11..... dry
Pierce, Empire Gas & Fuel Co. 15.... 55
Murger, Kirk Oil Co. 22..... 30
Nance, Ryan Pet. Co. 46..... 30
Nance, Ryan Pet. Co. 47..... 20
Burnett, Texhoma O. & R. Co. 3-L.... dry
Waggoner Bros., Texhoma O. & R. Co. 9 50
Waggoner Bros., Texhoma O. & R. Co. 10 75
Daume, Wolfe et al 2..... dry
Davis, Whibert Oil Co. 1..... dry
Overby, Cooper et al 1..... dry
Jennings, Dale Oil Corp. 18..... 5
Waggoner Bros., Hammon et al 5-B.... 35
Honaker, Hammond et al 1..... dry
Burnett, Madison Oil & Gas Co. 12.... 45
Waggoner, Pois et al 2..... 10
Waggoner, Pois et al 10..... 130
McCarty, Shappell Oil Co. 4-B..... dry

Wells completed 30
Dry 14
Production 1010

WILBARGER COUNTY
Sigler-Waggoner, Atlantic Oil Prod. 2 90
Waggoner, Pratt et al 1..... 200
Castlebury, The Texas Co. 1-C..... dry
Stephens, Barkley et al 5-A..... 600
Castlebury, Humble O. & R. Co. 20.... 265
Stephens, Humble O. & R. Co. 26..... 210
Stephens, Humble O. & R. Co. 37....1030
Waggoner, Landreth Production Co. 2-F 190
Stephens McCamey et al 9..... 110
Stephens, Barkley et al 7-A..... 600
Waggoner, Beatty et al 1..... 30
Waggoner, Dyson et al 1..... 30
Stephens, Humble O. & R. Co. 9..... 75
Stephens, Humble O. & R. Co. 36..... 450
Waggoner, Humble O. & R. Co. 3-G... 300
Castlebury, Kimberlin et al 1..... dry
Waggoner, Landreth Production Co. 3-A 325
Waggoner, Landreth Production Co. 5-D 375
Waggoner, Landreth Production Co. 5-D 370
Waggoner, Landreth Production Co. 8-D 450
Waggoner, Landreth Production Co. 3-F 310
Waggoner, Landreth Production Co. 1-G 350
Waggoner (Block 4), Levy et al 1..... dry
Stephens, McCamey et al 10..... 100
Stephens, McCamey et al 21..... 30
Stephens, McCamey et al 27..... 125
Piper, Magnolia Pet. Co. 46.....2097
Sumner, Magnolia Pet. Co. 50..... dry
Ditto, Murchison et al 1..... 20
Waggoner, Texhoma O. & R. Co..... dry
Bond, Bob Waggoner 1 ..... dry
Bond, Winnipeg Oil Co. 6-A..... 10
Stephens, Barkley et al 6-A..... 200
Servatius, Bridwell et al 1..... dry
Stephens, Bridwell et al 9..... 40
Stephens, Bridwell et al 12..... 250
Zipperle, Continental Oil Co. 7..... dry
Castlebury, Humble O. & R. Co. 17.... 125
Castlebury, Humble O. & R. Co. 21.... dry
Stephens, Humble O. & R. Co. 27.... 175
Stephens, Humble O. & R. Co. 34..... 45
Waggoner, Humble O. & R. Co. 1-E.... dry
Waggoner, Humble O. & R. Co. 1-H.... 40
Waggoner, Humble O. & R. Co. 2-H... 350
Stephens, McCamey et al 23..... 100
Dill, Petroleum Production Co. 5-A..... 15
Bond, Staley et al 12-B..... 10
Stephens, Staley et al 9..... 300

Wells completed 40
Dry 9
Production 10210

ARCHER COUNTY
Wisdom, Burns et al 1..... dry
Wilson, Burns et al 1..... dry
Cowan, Consolidated Oil Co. 1..... dry
Brown, Jones et al 1..... dry
White, Phillips Petroleum Co. 87..... 25
Wilmot, Sibley et al 12..... 15
Jackson, Shappell Oil Co. 34..... 80
White, White Star Prod. Co. 1..... dry
Wilson, Woodburn Oil Corp. 24-A..... 10
Oldhom, Consolidated Oil Co. 1..... dry
Jackson, Kollman et al 1..... dry
Rudd, Lincoln et al 1..... dry
Anderson, Perkins et al 7..... 160
Goldsmith, Prairie Oil & Gas Co. 21.. 5
Wilmot, Boller et al 8..... 20
Cowan, Consolidated Oil Co. 1-A..... dry
Wilson, Empire Gas & Fuel Co. 15-B 20
Wilson, Empire Gas & Fuel Co. 24-C 35
Cowan, Fletcher et al 1..... dry
Jackson, Kentucky Oil Corp. 1..... dry
Young, Maer et al 1..... dry
Miller, Pace et al 3..... dry
Oil Inv. Co., Rowe Drilling Co. 1..... dry
Kemp & Kempner, Shasta Oil Co. 1.. dry
Helm, Staley et al 1..... dry
Parrish, Staley et al 1..... 75
Plowman, Stewart et al 6..... 50
Fee, Young 2..... dry
Wilborn, Davis Hart Co. 1..... 90
Portwood, Magnolia Pet. Co. 2..... 300
Portwood, Magnolia Pet. Co. 3..... 115
Richardson, Marland Oil Co. 5..... dry
Cockrell, Pandem Oil Corp. 2..... dry
Young, Pandem Oil Corp. 3..... 175
Richardson-Mayfield, Prairie O. & G. Co. 31 ..... dry
Richardson, Sun Oil Co. 4..... 60
Richardson, Sun Oil Co. 5..... 175
Boren, The Texas Co. 2..... 40
Brom, Trio Oil Co. 5..... 75
Brom, Trio Oil Co. 6..... 250
Oldhom, Texhoma O. & R. Co. 2..... 30
Young, Verschoyle et al 1..... 75
Hutcherson, Coldwell et al 2..... 95
Jackson, Grisham et al 1..... dry
Rutty, Magnolia Pet. Co. 4..... 110
White, Magnolia Pet. Co. 6..... dry
Wilmot, Magnolia Pet. Co. 10..... dry
Wilson, Muse et al 2-B..... 60
Hutcherson, Pandem Oil Corp. 1..... 110
Browning, Ramming et al 1..... dry
Wilson, Staley et al 3..... 195
Taylor, Texhoma O. & R. Co. 9-A..... 45
Cowan, Wharton et al 1..... dry
Boren, Bridwell et al 6..... 90
Rogers, British American Oil Co. 9.... 50
Tabor, Burns et al 2..... dry
Stampflie, Magnolia Pet. Co. 4..... 25
Cowan, Major Petroleum Co. 2..... dry
Darilek, Merrick et al 1..... dry
Deitrick, Murchison et al 1..... dry
Abercrombie, Panhandle Ref. Co. 6.... dry
Richardson, Simms Oil Co. 1..... 5
Farmer, Sun Oil Co. 4..... dry
Schlegel, Sun Oil Co. 1..... dry
Hill, The Texas Co. 14..... 60
Hill, The Texas Co. 15..... 90
Abercrombie, Texhoma O. & R. Co. 1.. 60
Wilson, Empire Gas & Fuel Co. 8-E.. 80
Wilson, Empire Gas & Fuel Co. 9-E.. 55
Hutcherson, Hill et al 1..... 90
Miller, Kentucky Oil Corp. 1..... 15
Wilson, Maxson et al 4..... 40
Miller, Pace et al 4..... 20
Wilson, Staley et al 15-C..... 25
Wilson, Stump et al 2..... dry
Portwood, American Ref. Co. 1..... 60
Neal, Evangeline Oil Co. 2..... dry
Llewellyn, McGregor et al 1..... dry
Cockrell, Pandem Oil Corp. 2..... 170
Hayter, Shaw et al 1..... dry
Prideaux, Sients et al 1..... 10
Cowan, E. L. Smith Oil Co. 13..... 10
Oldhom, Texhoma O. & R. Co. 3..... 150
Fee, Trinity Townsite Co. 1..... 25
Lausler, Wilson et al 1..... dry

Wells completed 49
Dry 18
Production 2460

YOUNG COUNTY
Logan, Burns et al 1..... dry
West, Murchison et al 1..... dry
West, Texas Unity Oil Co. 1..... dry
Campbell, Texhoma O. & R. Co. 3.... 70
Campbell, Texhoma O. & R. Co. 4.... 70
Campbell, Texhoma O. & R. Co. 5.... 255
Campbell, Texhoma O. & R. Co. 6.... dry
Campbell, Texhoma O. & R. Co. 7.... 65
Campbell, Texhoma O. & R. Co. 8.... dry
Campbell, Texhoma O. & R. Co. 9.... dry
Campbell, Tidal Oil Co. 3..... 240

Robinson, Wellman et al 1..... dry
Marshall, Bashara et al 2..... 165
Campbell, Clark et al 2..... 80
Keathley, Dale et al 1-B..... dry
Howard, Golding et al 1..... dry
Kunkel, Madden et al 1..... dry
Winkler, Shasta Oil Co. 1..... dry
Moore, The Texas Co. 1..... dry
Sloan, Texas Unity Oil Co. 2..... dry
Sloan, Texas Unity Oil Co. 3..... dry
Campbell, Texhoma O. & R. Co. 11... 245
Campbell, Texhoma O. & R. Co. 12... 125
Campbell, Tidal Oil Co. 4..... 30
Campbell, Tidal Oil Co. 5..... dry
Anderson, Wilson et al 1..... dry
Morrison, Hinson et al 1..... dry
Rogers, McLester Bros. 1..... dry
Jeffrey, Murchison et al 1..... dry
Benson, Parks et al 1..... dry
Farrow, Plains Production Co. 1..... dry
Leberman, Reed et al 1..... dry
Cathey, Roeser et al 4-B..... dry
Burgess, Roxana Pet. Co. 3..... 90
Stowe, Roxana Pet. Co. 1..... dry
Bloodworth, Sun Oil Co. 1..... dry
Campbell, Texhoma O. & R. Co. 10... 55
Campbell, Tidal Oil Co. 3..... 75
Campbell, Tidal Oil Co. 6..... 10
Campbell, Tidal Oil Co. 7..... 150
Harrison, Willis et al 1..... dry
Campbell, Camp Oil & Gas Co. 1..... 35
Keathley, Christie et al 2-B..... 25
Jeffrey, Consolidated Oil Co. 1..... dry
Leberman, F. H. E. Oil Co. 1..... dry
Morrison, Green et al 1..... dry
Brown, Hamilton et al 1..... dry
McClatchey, Hill et al 1..... dry
Kemp, Lesh et al 12..... dry
Bryan, Long et al 1..... dry
Stewart, Minnich et al 1..... dry
Campbell, Murchison et al 20-D..... 10
Campbell, Texhoma O. & R. Co. 13... 360
Campbell, Texhoma O. & R. Co. 14... dry
Campbell, Tidal Oil Co. 10..... 75

Wells completed 53
Dry 35
Production 2240

EASTLAND COUNTY

Collins, Woods et al 1..... dry
Kincaid, Dorothy Oil Co. 2..... 20
Johnson, States Oil Corp 1..... 40
Pettit, Robert Oil Corp. 1-B..... 100
Dulin, Cornelius Bros. 1..... 40
Hart, Root et al 1..... gas
Harris, Magnolia Pet. Co. 7..... dry
Scott, Teatsworth 7 100

Wells completed 3
Dry 2
Production 320
Gas 3

STEPHENS COUNTY

Litton, Clark et al 1..... 30
Hagaman, Hagaman Ref. Co. 1..... gas
Pace, Phillips Pet. Co. 1..... dry
Cooper, States Oil Corp. 1..... dry
McCleskey, Moorman et al 2..... dry
Kirtley, Texas Pacific Coal & Oil Co. 4 dry
Ming, Cuervo Oil Syndicate 2..... gas
Post, Edison et al 1..... 50
Head, Mook Texas Oil Co. 3..... 25
Sikes, States Oil Corp. 2..... gas
Binney, Texas Pacific Coal & Oil Co. 57 50
Hand, Texas Pacific Coal & Oil Co. 3 250
Curry, The Texas Co. 11..... gas

Wells completed 13
Dry 4
Production 405
Gas 3
Gas production 30,250,000

BROWN COUNTY

Teston, Gillman et al 7..... 10
Angel, Keough et al 1..... gas
Windham, Slick et al 1..... gas
Gunn, Stone et al 4..... 25
Henry, Street et al 1..... dry
Wooldridge, Conway Bros. 2..... 10
Gaines, Prairie Oil & Gas Co. 9..... 15
Gaines, Simms Oil Co. 3..... 15
Baxter, Casden et al 8..... 5
Prather, Evans et al 1..... 60
Chambers, Gilman et al 4..... 90
Prather, Maloy et al 3..... 30
Harrell, Ghalson et al 1..... dry
Stover, Humble O. & R. Co. 1..... 35
Byrd, Landreth Production Co. 1..... dry
Newton, Williamson et al 2..... 30

Wells completed 16
Dry 3
Production 305

REAGAN COUNTY

University, Big Lake Oil Co. 50..... 190
Group 1 University, Texon Oil & Land Co. 25 390
Group 1 University, Texon Oil & Land Co. 26 435
University, Big Lake Oil Co. 48..... 1440
Group 1 University, Texon Oil & Land Co. 30 935
Group 1 University, Texon Oil & Land Co. 32 965
University, Simon et al 1..... dry

Wells completed 7
Dry 1
Production 4345

WILDCATS

Callahan County—

Barr, Canyon Oil & Gas Co. 3..... 10
Block 67, Herbert Oil Co. 1..... 40
Block 8, Jones et al 1..... 100
Block 59, Lewis et al 1..... 180
McDonough, Mook Texas Oil Co. 3.... 60
Block 63, Schaffre Bros. 1..... 50
Block 23, Wakefield et al 1..... 10
Block 87, Wakefield et al 1..... 40
Block 47, Warren et al 1..... 250
Erwin, Wilson et al 1..... dry
Block 48, Witherspoon Oil Co. 1..... 75
Block 23, Bronnon et al 1..... 800
Block 53, Brothers et al 1..... 100
Block 80, Cranfill et al 1..... dry
Block 22, Kirk et al 1..... 975
Block 29, Kirk et al 1..... 75
Thorn, Sudderth et al 1..... gas
Block 35, Weller Bros. 1..... 100
Block 51, Albritton et al 1..... 100
Block 1, Cranfill et al 20
Blocks 1 and 34, Cranfill et al 1..... 50
Block 71, Cranfill et al 1..... 80
M. K. & T., Cranfill et al 4..... 100
Block 21, Guffrey et al 1..... 100
Block 25, Harper et al 1..... 75
Block 52, Mitchell et al 1..... 110
Block 79, Mitchell et al 1..... 15
Block 43, Shackelford et al 1..... 10
Block 2, Bond et al 1..... dry
Block 45, Bronnon et al 1..... 250
Block 13, Harris et al 1..... 125
Block 30, Herbert Oil Co. 1..... 80
McDonough, Mook Texas Oil Co. 5.... 100
Block 36, Weller Bros. et al 1..... 80

Hutchinson County—

Pitts, Crosbie et al 1..... gas
Whittenburg, Gibson et al 1..... 240
Perkins, Panhandle Ref. Co. 3..... 200
Smith, Roxana Pet. Corp. 1..... 115

Montague County—

Jones, Humphreys Corp. 3..... 15
Jones, Pure Oil Co. 1-B..... 25
Maddox, E. L. Smith Oil Co. 1..... gas
Howard, Texhoma O. & R. Co. 5..... dry
Rowland, Texhoma O. & R. Co. 2..... 55
Maddox, Pure Oil Co. 3..... 70
Howard, Texhoma O. & R. Co. 6..... 65

Throckmorton County—

Putman, Associated Pet. Co. 1..... dry
Cummings Associated Pet. Co. 2..... gas
Harrison, Humble Oil & Ref. Co. 1.... dry

Palo Pinto County—

Edmondson, Upham Gas Co. 3..... gas
Perkins, Dalton et al 1..... dry
Belding, Upham Gas Co. 4..... dry

Mitchell County—

Elder, Eastland Oil Co. 1..... 90
Scott, Henshaw et al 1..... dry
Miller, California Co. 1..... 120
Womack, Atlantic Oil Prod. Co. 1.... 210
Keith, Snyder et al 1..... dry
Womack, California Co. 2..... 180
Miller, California Co. 2..... 130

Comanche County—

Sturkie, Cox et al 1..... dry
Goss, Mon Tex Oil Corp. 3..... dry

Wheeler County—

Westmoreland, Shedden et al 1..... dry
O'Gorman, Vaughan et al 1..... gas
Emler, Angus et al 1..... gas

Baylor County—

Mills, Petroleum Prod. Co. 4..... 75
Michna, Southern Exploration Co. 1... dry
Portwood, Pandem Oil Corp. 1..... 25

Coleman County—

Morris, Duncan et al 1..... gas
Kelly, Cranfill et al 1..... dry
Young, Morrison et al 1..... gas
Pipe, Rotblott et al 1..... dry
Nicholson, Wright et al 1..... dry

Clay County—

Edrington, Howell et al 1..... dry
Boddy, Bevering et al 2..... 15
Hughes, Sawyer et al 1..... dry

Cooke County—

Williams, Pettit et al 1..... dry

Irion County—

Sawyer, Kirby et al 1..... dry
Case, Va-Tex Pet. Co. 1..... dry

Shackelford County—

Clausell, Melham Corp 1..... dry
Clausell, Melham Corp. 3..... dry

Val Verde County—

Harrison, Hodges et al 1..... dry

Wells completed 80
Dry 25
Production 5835
Gas 9
Gas production 95,650,000

WICHITA COUNTY

Rig

Birk, White et al 1.

Wells Drilling

Miller, Bridwell et al 1.
Hansard, Burt et al 1.
Birk, Fisher et al 1.
Riley, Laning et al 1.
Holtzen, Magnolia Petroleum Co. 8.
Reilly, Magnolia Pet. Co. 119, 122, 124.
Roller, Robinson et al 19.
Beach, Texhoma Oil & Ref. Co. 1-A.
McClure, White et al 1.
Jackson, Panhandle Refining Co. 4.
Jackson Shappell Oil Co. 36.
Ancell, Allen et al 1.
Jennings, Ample et al 16-A.
Snow, Beaudoin et al 1.
Fisher, Biggs Oil Co. 12.
Jennings, Brader et al 2.
Hirschi, Compton Oil Corp. 1.
Jennings, Tate Oil Corp. 19, 20.
Murray, Plectra Gulf Oil Co. 7.
Burnett, Hammond et al 3.
Allen, Magnolia Pet. Co. 66.
Honaker, Magnolia Pet. Co. 69.
Maer, Magnolia Pet. Co. 32.
Maer, Magnolia Pet. Co. 33.
Pratt, Magnolia Pet. Co. 13-A.
Rio Bravo, Magnolia Pet. Co. 52.
Rio Bravo, Magnolia Pet. Co. 53.
Watkins, Magnolia Pet. Co. 10.
Roberts, O'Neil et al 1.
Fisher, Patterson et al 4.
Munger, Perkins et al 1.
Henson, Ryan Petroleum Co. 2.
Nance, Ryan Petroleum Co. 48.
Marshall, Staley et al 1.
Burnett, Texhoma Oil & Ref. Co. 6-E.
Ferguson, Texhoma Oil & Ref. Co. 1.
Waggoner Bros., Texhoma O. & R. Co. 11.
Waggoner Bros., Texhoma O. & R. Co. 12.

Rig, 1; wells drilling, 41; total, 42.

WILBARGER COUNTY

Rigs

Zinnerle, Burton et al 2.
Waggoner, Humble Oil & Ref. Co. 5-H. 7-W, 1-N, 1-O.
Waggoner, Landreth Prod. Co. 8-F, 2-PP, 1-WW.
Waggoner, Lippard et al 1.

Wells Drilling

Stephens, Barkley et al 2-A.
Stephens, Barkley et al 8-A, 9-A, 2-B, 3-B, 4-B.
Stephens, Bridwell et al 8.
Zinnerle, Continental Oil Co. 8.
Berry, Culberson et al 1.
Waggoner, Carreston et al 1.
George, Graham et al 1.
Waggoner, Gray Oil Co. 1.
Waggoner, Herbert Oil Co. 1.
Castleberry, Humble Oil & Ref. Co. 23.
Stephens, Humble Oil & Ref. Co. 6, 22, 31, 33-A, 38-A.
Stephens, Humble Oil & Ref. Co. 39-A, 40-A, 41-A.
Waggoner, Humble Oil & Ref. Co. 4-G, 4-H, 2-I, 1-K, 1-L, 1-M.
Waggoner, Independent Oil & Gas Co. 1.
Waggoner, Kolp et al 10-A.
Waggoner, Landreth Prod. Co. 3-A, 5-A, 1-AA, 1-BB, 1-CC, 4-D.
Waggoner, Landreth Prod. Co. 7-D, 9-D, 10-D, 1-E, 1-PP, 4-P.
Waggoner, Landreth Prod. Co. 6-F, 1-H, 2-I, 1-P, 1-PP, 1-Q.
Waggoner, Landreth Prod. Co. 1-QQ, 1-U.
Waggoner, Lawson et al 14.
Waggoner, Jim McCamey et al 1.
Stephens, McCamey et al 28, 29.
Fee, Magnolia Pet. Co. 70.
Waggoner, Milham Corp. 2-A, 1-C, 1-D.
Ditto, Murchison et al 2.
Waggoner, Prairie Oil & Gas Co. 2-A.
Waggoner, Roeser et al 1-B.
Waggoner, Roxana Pet. Co. 3-A, 1-C.
Waggoner, Shamrock Oil Co. 1.
Waggoner, Sloan et al 1.
Bond, South Vernon Oil Co. 1.
Stephens, Staley et al 8, 10, 11.
Waggoner, States Oil Corp. 1.
Dill, The Texas Co. 1.
Zipperle, The Texas Co. 1.
Waggoner, Tidal Oil Co. 1.
Waggoner, Winnipeg Oil Co. 1.
Dennis, Wood et al 1.

Rigs, 9; wells drilling, 74; total, 83.

ARCHER COUNTY

Rigs

Stehlik, Burton et al 1.
Wilson, Bridwell et al 9.
Morwitz, Hart Oil Corp. 1.
Hutcherson, Hazlett et al 1.
Miller, Kentucky Oil Corp. 2.
Wilson, Waite Phillips 9-B, 10-B, 14-B, 2-A, 3-Z, 37, 38.
Parrish, Staley et al 3.
Jackson, Wichtex Dixie Oil Co. 4.
Anderson, Nordsy Oil Co. 5.

Wells Drilling

Mangold, Consolidated Oil Co. 1.
Jackson, Shappell Oil Co. 37.
Plowman, Atlantic Oil Prod. Co. 1.
Gose, Bailey et al 1.
Wilson, Barkley et al 17.
Wilmot, Boller et al 9.
Wilson, Burns et al 11.
Wilson, Carter et al 1.
White, Day et al 4.
Jackson, Continental Oil Co. 1.
Mahler, Harris et al 1.
Hutcherson, Maer et al 1.
Hutcherson, Mahlstedt Mook Oil Co. 2.
Rutty, Norwood et al 1.
Hutcherson, Pandem Oil Corp. 2.
Parkey, Pandem Oil Corp. 1.
Brown, Panhandle Refining Co. 1.
White, Phillips Petroleum Co. 88.
Wilson, Riner et al 1-D.
Wilson, Staley et al 14-C, 4.
Cowan, Sanford et al 1.
Plowman, Stewart Developing Co. 1.
Taylor, Texhoma Oil & Ref. Co. 10-A.
Taylor, The Texas Co. 1.
T. B. Wilson, The Texas Co. 1.
Jackson, Wichtex Oil Co. 3.
Wilson, Wilson Drilling Co. 5-A.
Abney, Young et al 1.
Turbeville, Bridwell et al 1.
Parkey, B. S. & B. Oil Co. 1.
Wolf, Consolidated Oil Co. 1.
Oldhom, Hammond et al 1.
Baggett, Kentucky Oil Corp. 1.
Logan, Logan et al 1.
Cowan, Major Petroleum Co. 3.
Crawford, Pandem Oil Corp. 1.
Anderson, Perkins et al 8.
DeKinder, Red Bank Oil Co. 1.
Welhelm, Reilly et al 1.
Sorelle, Shasta Oil Co. 1.
Farmer, Sun Oil Co. 15.
Oldhom, Texhoma Oil & Ref. Co. 4.
Abercrombie, Texhoma Oil & Ref. Co. 2.
Portwood, American Ref. Co. 2, 3.
Falls County, Atlantic Oil Producers 1.
Rogers, British American Oil Co. 10.
Kruger, Cook et al 1.
Wilborn, Green et al 2-A.
Brom, Magnolia Petroleum Co. 2.
Portwood, Magnolia Petroleum Co. 4, 5.
Lowe, Magnolia Petroleum Co. 10.
Richardson, Marland Oil Co. 3.
Talbott, Murchison et al 1.
Cockrell, Pandem Oil Corp. 4, 5.
Falls County, Phillips Petroleum Co. 1.
Richardson, Sun Oil Co. 6, 7.
Hill, The Texas Co. 16.
Wilborn, The Texas Co. 1.
Brom, Trio Oil Co. 8, 9.
Young, Verschoyle et al 2.
Portwood, Winnipeg Oil Co. 1.

Rigs, 15; wells drilling, 66; total, 81.

YOUNG COUNTY

Rigs

Stewart Appleby et al 1.
Wilborn, Green et al 1-B.

Wells Drilling

Campbell, Camp Oil & Gas Co. 2.
Keathley, Christie et al 2-B.
Gibbs, Consolidated Oil Co. 1.
Scarborough, Coones et al 2.
Campbell, Everts et al 1.
Benson, Hoyle et al 1.
Speer, Newberg et al 1.
Casey, Plains Production Co. 1.
Leberman, Reed et al 1.
Campbell, Richard et al 3.
White, Seigler et al 1.
Goldston, Simms Oil Co. 1.
Perkins, Suggett et al 1.
Kimkel, Texas & Pacific Coal & Oil Co. 1.
Barry, The Texas Co. 1.
Campbell, Texhoma Oil & Ref. Co. 15, 16.
Camp Oil, Tidal Oil Co. 11, 12, 13.
Campbell, Willis et al 2.
Belknap Coal, Whitehead et al 2-B.

Rigs, 2; wells drilling, 22; total, 24.

STEPHENS COUNTY

Rigs

Akin, Brown & Co. 3.
Gardenhire, Christie Bros. 2.
Litton, Clark et al 2.
Houston, Eidson et al 1.
Grimes, Kleinfelder et al 4.
Goswick, Lightfoot et al 1.
Bruce, Price et al 6.
Swenson, Swensondale Oil Co. 32.

Wells Drilling

Cunningham, Gardner et al 2.
Hill, Mid-Kansas Oil & Gas Co. 7, 8.
Cunningham, Mid-Tex Oil Co. 3.
Morrison, Mid-Tex Oil Co. 1.
Donnell, Prairie Oil & Gas Co. 1.
Langford, Rhodes et al 1.
Keathley, Atkinson et al 1.
Akin, Brown & Co. 4.
Smith, Carter et al 1.
Young, Chastain et al 1.
Sikes, Curry Pool Oil Co. 2.
Parks, Hickok P. & D. Co. 1.
Gandy, Hughes et al 5.
Long, Hughes et al 1.
Thompson, Hughes et al 1.
Elliott, Landreth Production Co. 1.
Gratz, Landreth Production Co. 4.
Guest, Landreth Production Co. 1.
Suddeth, Roth et al 1.
Ming, Scanlon et al 1.
Cooper, States Oil Corp. 3.
Dean, States Oil Corp. 1.
Hawkins, States Oil Corp 2.
Stuart, Strawn Petroleum Co. 25.
Swenson, Swensondale Oil Co. 1-B.
Adams, Texas & Pacific Coal & Oil Co. 7.
Binney, Texas & Pacific Coal & Oil Co. 59, 60.
Hand, Texas & Pacific Coal & Oil Co. 4.
Veale, Texas & Pacific Coal & Oil Co. 8.
Grimes, The Texas Co. 2.
Keathley, Walker-Caldwell 1.

Rigs, 8; wells drilling, 33; total, 41.

EASTLAND COUNTY

Rigs

White, Eastland Oil Co. 1.
Hankins, Magnolia Petroleum Co. 9.
Mulloy, Bateman et al 1.

Wells Drilling

Reid, Barkley et al 1.
Falls, Carter et al 1.
Whitson, Cortzelius Bros. et al 1.
Dawson, Dean et al 1.
Thurman, Hoffer Oil Corp. 1.
Allen, Lightfoot et al 3.
Webb, Mahlstedt Oil Co. 1.
Williams, Mid-Kansas Oil & Gas Co. 1.
Collins, Woods et al 1-B.
Grove, Adams et al 1, 2.
Amis, Hickok P. & D. Co. 1.
Kimbrough, Hickok P. & D. Co. 1.
Johnson, McBride et al 1.
Martin, Pitzer et al 1.
Leveridge, Reeves et al 1.
Luse, Root et al 1.
Gibson, Root et al 5.

Rigs, 3; wells drilling, 18; total, 21.

BROWN COUNTY

Rigs

Westerman, Casden et al 4.
Chambers, Gilman et al 3.
Keller, Williamson et al 1.

Wells Drilling

Newton, Adams et al 1.
Williams, Anderson et al 1.
Gaines, Bateman et al 1.
Chambers, Casden et al 3.
Boysen, Boysen et al 1.
Gaines, Casden et al 1.
Stone, Eastland Oil Co. 1.
Gunn, Gillespie et al 1.
Chambers, Gilliman et al 5.
Thompson, Gilliman et al 2.
Lewis, Gray et al 1.
Graham, Infield Petroleum Co. 1.
Wooldridge, McLester Oil Co. 1.
Gaines, Prairie Oil & Gas Co. 10.
Prather, Schaffner et al 4, 5.
Lewis, Shodbolt et al 1.
Gaines, Simms Oil Co. 4.
Byrd, Sudderth et al 1.
Ward, Thompson et al 1.

Rigs, 3; wells drilling, 20; total, 23.

REAGAN COUNTY

Rigs

University, Big Lake Oil Co. 59, 60.
Group 1 University, Texon Oil & Land Co. 38.

Wells Drilling

University, Big Lake Oil Co. 49, 51, 52, 53, 54, 55, 20-A, 22-A, 25-A.
Group 1 University, Texon Oil & Land Co. 31, 33, 34, 36, 1-A.

Rigs, 3; wells drilling, 14; total, 17.

WILDCATS

Callahan County—

Rigs

Block, Cranfill et al 1.
Windham, French et al 1.
Block 11, McCamey et al 1.
Block 31, Weller Bros. et al 1.

Wells Drilling

Block 4, Bronnon et al 1.
Block 5, Bronnon et al 1.
Block 14, Bronnon et al 1.
Block 28, Bronnon et al 1.
Block 44, Bronnon et al 1.
Block 37, Cranfill et al 1.
Terry, Dalmond et al 1.
Conlee, Holmack Oil Co. 1.
Brigner, Hornbeak et al 1.
Block 20, Mitchell et al 1.
Block 24, Mitchell et al 1.
Strahon, McCamey et al 1.
McDonough, Mook-Texas Oil Co. 4.
Smart, Petroleum Exploration Co. 1.
Block 32, Weller Bros. et al 1.

Throckmorton County—

Rig

Lee, Reiter-Foster et al 1.

Wells Drilling

Cummings, Associated Petroleum Co. 1.
Richards, Larkin et al 1.
Davis, Magnolia Petroleum Co. 1.
Parrott, Red Bank Oil Co. 1.
Stubblefield, Reiter-Foster et al 2.
Stevens, Southern Exploration Co. 1.
Reynolds, Texhoma Oil & Ref. Co. 3.

Shackelford County—

Rig

Lynch, Phillips Petroleum Co. 1.

Wells Drilling

Moberly, Albany Oil Co. 5.
Proctor, Carter et al 1.
Dowell, Chadwick et al 1.
Newell, Hope Petroleum Co. 1.
McLemone, Humble Oil & Ref. Co. 1
Black Bros., Lake et al 1.
Matthews, McLeon Drilling Co. 1.
Clausell, Milham Corp. 1-A, 4.
Compton, Phillips Petroleum Co. 2.
Fry, Phillips Petroleum Co. 1.
Parrish, Phillips Petroleum Co. 9.
Smalley, Phillips Petroleum Co. 1.
Cook, Roeser et al 1.
Green, The Texas Co. 1.
Reynolds, United Mutual Oil Co. 1.
McKeever, Zeigler et al 1.

Upton County—

Wells Drilling

Burleson, Dixie Oil Co. 1.
Union Land Co., Kirby Petroleum Co. 1.

Crane County—

Rig

University, Church et al 1.

Wells Drilling

Cowden, Cardona Oil & Prod. Co. 1.
Cowden, Penn-Tex Developing Co. 1.
Cowden, Texas Developing Co. 1.

Reeves County—

Wells Drilling

Tatum, Deep Rock Oil Co. 1.
Kloh, World Oil Co. 1.

Pecos County—

Wells Drilling

Gray, Tom Adams Oil Co. 1.

Hershensen, Dixie Oil Co. 1.
Perry, Transcontinental Oil Co. 1.

Crockett County—
Wells Drilling
Todd, Cooke et al 1.
Shannon, Crockett Drilling Syndicate 2.
Powell, Humble Oil & Ref. Co. 3.
Song, Humble Oil & Ref. Co. 1.
University, Humphreys Oil Co. 1.
Todd, Marland Oil Co. 1.
Powell, Wade et al 1.

Val Verde County—
Wells Drilling
Whitehead, Independent Operators 1.
Moore, Williams et al 1.

Presidio County—
Well Drilling
Toole, Headlock et al 1.

Hutchinson County—
Rigs
Smith, Holmes et al 1.
Smith, Lenix et al 1.
Kingsford, Twin Six Oil Co. 3, 4.
Smith, Tyrrell et al 1, 2.
Wells Drilling
Weatherly, American Refining Co. 1.
Whittenburg, Canyon Oil Co. 1, 2.
Smith, Centerfield Oil & Ref. Co. 1.
Smith, Crosbie et al 1.
Smith, Dixon Creek Oil Co. 2-A.
Whittenburg, Douglas Oil Co. 1.
Smith, McIlroy Bros. et al 2.
Weatherly, McKinney et al 1.
Weatherly, Middleton et al 2.
Barton, New Domain Oil Co. 1.
Johnson, Prairie Oil & Gas Co. 1.
Weatherly, Prairie Oil & Gas Co. 1.
Weatherly, Phillips Petroleum Co. 1.
Johnson, Tex-O Oil Co. 1.
Kingsford, Travelers Oil Co. 1.
Kingsford, Twin Six Oil Co. 2.
Smith, Western Enterprise O. & G. Co. 2.
Whittenburg, Westex Oil Co. 1.
Kingsford, Whittington et al 1.

Moore County—
Well Drilling
Masterson, Amarillo Oil Co. 2-A.

Potter County—
Well Drilling
Bivins, Amarillo Oil Co. 4-A.

Carson County—
Rig
Burnett, Crosbie Oil Co. 3.
Wells Drilling
Bivins, Amarillo Oil Co. 3-B.
Burnett, American Refining Co. 5-A, 6.
Burnett, Gates Oil Co. 2.
Burnett, Magnolia Petroleum Co. 1.
Burnett, The Texas Co. 4-Mc.

Gray County—
Wells Drilling
Beavers, Anderson et al 1.
Heilholt, Empire Gas & Fuel Co. 1.

Wheeler County—
Wells Drilling
Kochelhoffer, McFarland et al 1.
Company, Midwest Exploration Co. 1.

King County—
Well Drilling
Masterson, California Co. 7.

Stonewall County—
Wells Drilling
Craft, Arkansas Fuel Oil Co. 1.
Ward, Ward Syndicate 1.

Garza County—
Well Drilling
Connell, Marland Oil Co. 1.

Scurry County—
Well Drilling
Wood, California Co. 1.

Palo Pinto County—
Wells Drilling
Dalton, Jack Dalton Oil Co. 6.
Smith, Singleton et al 1.
Pollard, Adams et al 2.
Cardwell, Hart et al 2.
Sheppard, Spoor et al 1.

Mitchell County—
Rigs
Womack, Atlantic Oil Prod. Co. 3.
Adams, Magnolia Petroleum Co. 1.
Elder, California Co. 5.
Miller, California Co. 5.
Adams, Eastland Oil Co. 1.
Wells Drilling
Womack, Atlantic Oil & Prod. Co. 2.
Hyman, Morrison et al 1.
Coleman, Magnolia Petroleum Co. 1.
Watson, Magnolia Petroleum Co. 1.
Abroms, California Co. 10.
Swenson, California Co. 1.
Adams, California Co. 1.
Morrison, California Co. 15.

Howard County—
Wells Drilling
Scott, Deep Rock Oil Co. 1.
O'Daniel, Marland Oil Co. 1.

Loving County—
Well Drilling
Chapman, P. V. Petroleum Co. 1.

Glasscock County—
Well Drilling
Mook, Marland Oil Co. 1.

Sterling County—
Wells Drilling
Dauthit, Co-Operative Lease & Dev. Co. 1.
Reynolds, Harty et al 1.
Mills, White Eagle Oil & Ref. Co. 1.

Coleman County—
Rig
McCrary, Monroe Production Co. 1.
Wells Drilling
Morris, Bateman et al 1.
Harris, Conyon Oil & Gas Co. 1.
Crawford, English et al 1.
Morris, French et al 1.
Aston, Gilman et al 1.
Dibrell, Gwinup et al 1.
McDermitt, McLester Oil Co. 1.
McClellan, Merry Bros. et al 1.
Powell, Texas Pacific Coal & Oil Co. 1.
Haile, The Texas Co. 1.
Hutchings, Wright et al 1.
Watson, Gladys Belle Oil Co. 3.

Comanche County—
Rig
Evans, Brown Drilling Co. 1.
Well Drilling
Utterback, Trojan Oil Co. 1.

Tom Green County—
Wells Drilling
Williams, Church et al 1.
Turner, Penn et al 1.
Clark, Roxana Petroleum Co. 1.

Irion County—
Well Drilling
Sawyer, Oklavania Oil Co. 1.

Foard County—
McCoy, The Texas Co. 1.

King County—
Well Drilling
Masterson, California Co. 1.

Baylor County—
Wells Drilling
Mills, Hooser et al 13.
Mills, Shaw et al 6.
Mills, Texhoma Oil & Ref. Co. 1.
Haggard, British American Oil Co. 1.

Clay County—
Rig
Kofer, Tarkington et al 1.
Wells Drilling
Johnson, Knox et al 1.
Halloway, Lone Star Gas Co. 17, 18.
Myers, Cook et al 2.
Boddy, Foster et al 1.
Halsell, Murchison et al 1.
Winfrey, Southern Core Drilling Co. 1.
Chapin, Nelson et al 1.

Montague County—
Rig
Steadman, Universal Oil Co. 1.
Wells Drilling
Maddox, Pure Oil Co. 4.
Howard, Texhoma Oil & Ref. Co. 7.
Maddox, The Texas Co. 1.

Cooke County—
Rig
Hyman, Lannier et al 1.
Wells Drilling
Lester, Big Indian Oil Co. 1.
Ludeman, Sun Oil Co. 1.

Wise County—
Wells Drilling
Cassidy, Magnolia Petroleum Co. 1.
Castlebury, Transcontinental Oil Co. 1.

Jack County—
Well Drilling
Wilson, Phillips et al 1.

Lynn County—
Rig
Edwards, Hart Oil Corp. 1.

Sutton County—
Rig
Ellison, Chespeak Oil Co. 1.
Rigs, 34; wells drilling, 155; total, 189.

EAST CENTRAL TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Navarro	11	40	8	0	2	6	8
Limestone-Freestone	5	250	2	2	3	5	8
Miscellaneous	0	0	0	0	1	14	15
Total Dec.	16	290	10	2	6	25	31
Total Nov.	30	112	26	1	2	28	30
Difference	14	178	16	1	4	3	1

WELLS COMPLETED
NAVARRO COUNTY

Slime, Carrita O. & G. 1 ..... dry
Westbrook, Elliott & Nicolle 1 ..... dry
Hillburn, Barclay & Meadows 3 ..... dry
Laird, Sun Oil Co. 3-A ..... dry
Bounds, Gulf Prod. Co. 3 ..... dry
Cerf, Farish, Watts & Collins 4-A ..... abd
Bailey, Roxana Pet. 4 20
Kent, Tidal Oil Co. 2 3
Thompson, Tidal Oil 9 17
Greer, Gilbert Johnson 1 ..... dry
Bell, Tickle, Garland Kent 1 ..... dry

Completed 11
Production 40
Dry 8

LIMESTONE-FREESTONE COUNTIES

Smith, Pure Oil 18-B ..... dry
Ellis, J. K. Hughes et al 17 250
Stroud, Magnolia Petr. 2 ..... gas
Hays, Mike Kourt 1 ..... dry
Seals, Pure Oil 1 ..... gas

Completed 5
Production 250
Dry 2
Gas 2
Gas production 750,000

RIGS AND WELLS DRILLING
NAVARRO COUNTY
Rigs
Fullwood, Dr. Johnson et al.
McClelland, McDonald Bros. 2.
Wells Drilling
Kellum, Sims Oil Co. 7.
Moore, E. L. Smith & Co. 1.
Sneed, Kerr & Gillette 1.
Laird, King State Oil Co. 1.
Bounds, Brothers Oil Co. 8.
McClelland, McDonald Bros. 2.
Longbotham, Snowden & McSweeney 13.
Rigs, 2; wells drilling, 8; total, 10.

LIMESTONE-FREESTONE COUNTIES
Rigs
Bounds, Patterson Lake Oil Co. 1.
Seals, Pure Oil Co. 3.
Williams, Magnolia Petr. 1.
Wells Drilling
Pickens, Kechi Petr. 1*.
Richardson, Pure Oil 26*.
Kindricks, Pure Oil 15.
Rivers, Eisenmayer et al 2.
Curry, Patty Kosse 1*.
Rigs, 2; wells drilling, 5; total, 8.

MISCELLANEOUS COUNTIES
Rigs

Milam County—
McKinney, Reiter-Foster Corp. 1.

Cherokee County—
Clapp, Collington Drg. Co. 1.
Woodruff, Richardson Bros. & Mook-Texas Oil Co. 1.

Henderson County—
Gamble, Atlantic O. P. 1.
Sterrett, Ferdinand Heine 1.
Bounds, F. Haynes 3*.
Martin, Evans et al 1*.
Dansby, Billings et al 1*.

Hopkins County—
Brooks, Kelsey et al 1*.

Hunt County—
Barnett, Tullal & Kelsey 1.
Bell, Gulf Prod. Co. 1.

Kaufman County—
Williamson, J. D. Harper 1.

Milam County—
Isaacs, John R. Lee 1.
Brown, Allen & Barger 1*.
Rigs, 1; drilling, 14; total, 15.

GULF COAST

Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Batson	8	39	4	0	2	5	7
Boling	3	2,600	2	0	2	0	2
Blue Ridge	1	1,500	0	0	0	1	1
Big Creek	1	1,000	0	0	1	1	2
Dayton	1	200	0	0	0	2	2
Edgerly (La.)	0	0	0	0	1	0	1
Goose Creek	8	445	1	0	2	8	10
Humble	2	75	0	0	2	6	8
Hull	10	4,450	2	0	1	14	15
High Island	3	150	2	0	1	4	5
Jennings (La.)	4	165	0	0	1	2	3
Lockport (La.)	3	0	2	0	2	4	6
Markham	0	0	0	0	1	0	1
Orange	8	8,095	0	0	3	15	18
Pierce Jct.	2	3,500	1	0	2	3	5
Piedras Pintas	1	1,000	0	0	0	0	0
Spindletop	7	65	3	0	1	4	5
Saratoga	2	15	1	0	0	3	3
Sour Lake	2	15	1	0	1	3	4
South Liberty	0	0	0	0	0	2	2
Vinton (La.)	3	435	0	0	1	6	7
W. Columbia	2	75	1	0	2	1	3
Miscellaneous	16	0	15	1	14	63	77
Total Dec.	86	23,824	35	1	40	147	187
Total Nov.	90	38,180	30	0	44	164	208
Difference	4	14,356	5	1	4	17	21

WELLS COMPLETED
BATSON

Paraffin, Ada Belle Oil 105 1
Paraffin, Ada Belle Oil 106 4
Knight, Ada Belle Oil 104 5
Milhome, S. R. Buchanan 84 25
Milhome, S. R. Buchanan 85 ..... sw
Wing, Gulf Prod. 163 ..... sw
Paraffin, Paraffin Oil 163 ..... sw
Hooks, Sun Oil Co. 75 ..... dry

Wells completed 8
Production 39
Dry and salt water 4

BOLING

Taylor, The Texas Co. 3 2600
Schumaker, The Texas Co. 1 ..... abd
Bay, Gayle & Weed 1 ..... abd

Wells completed 3
Production 2600
Abandoned 2

BLUE RIDGE

West-Schenck, Gulf Prod. 3 (d. d.) .. 1500

Well completed 1
Production 1500

BIG CREEK

Davis, Gulf Prod. 18 (d. d.) 1000

Well completed 1
Production 1000

DAYTON

Granberry, Deering & Kasyer 1 200

Well completed 1
Production 200

GOOSE CREEK

Smith, Humble Oil & Ref 20 (wo) 60
Smith, Humble Oil & Ref. 65 50
Harrell, Humble Oil & Ref. 4 ..... a. d
Galliard, Gulf Coast-Crown Central 5 .. 25
Beaumont, Gulf Prod. 30 75
Houston-Galliard, Gulf. Prod. 8 60
Bartlett-Smith, Sun Oil Co. 14 100
Freeman, Southern Exploration 7 75

Wells completed 8
Production 445
Abandoned 1

HUMBLE

Lipper, Kirby Pet. 1 25
Hirsch, F. M. Long 5 50

Wells completed 2
Production 75

HULL

Phoenix, Gulf Prod. 32 (wo.) 75
Dolbear, Republic Prod. 53 (wo) 250
Dolbear, Republic Prod. 117 850
Barngrover, Houston Prod. 8 3000
Barngrover, Houston Prod. 9 100
Abel, Houston Prod. 6 ..... sw
Taylor, Mecom Oil 2 (wo) 50
Merchant, Yount-Lee Oil 7 125
Merchant, Yount-Lee Oil 12 ..... gas
Taylor, Higgins Oil & Fuel 5 ..... sw

Wells completed 10
Production 4450
Abandoned and salt water 2
Gas 1

HIGH ISLAND

Smith, Gulf Prod. 3 (wo) 150
Smith, Sun Oil Co. 1 ..... abd
Tiernan, Transbay Oil 1 ..... abd

Wells completed 3
Production 150
Abandoned 2

JENNINGS

Latrielle, The Texas Co. 26 (wo) 75
Latrielle, The Texas Co. 58 (wo) 75
Heywood, Ogden Oil 4 5
S. F. S., Ogden Oil 5 10

Wells completed 4
Production 165

LOCKPORT

Prien Lake, Vacuum-Gulf Cos. 1 ..... abd
Lock-Moore, Vacuum-Gulf 3 ..... abd

Wells completed 2
Abandoned 2

ORANGE

Chesson, Humble Oil & Ref. 19-A 3000
Hager Fee, Gulf Prod. 18 1800
Hager Fee, Gulf Prod. 19 3000
Gunsmith, Sun Oil Co. 6 70
Chesson, Orange Pet. 12 160
Winifree, Orange Pet. 7 35
Brown, Brownie Babbittea Oil 3 (wo) .. 20
State Land, Tillery Oil 2 (wo) 10

Wells completed 8
Production 8095

PIERCE JUNCTION

Settegast, Rio Bravo Oil 1-P 3500
Taylor, Gulf Prod. 17 (wo) ..... sw

Wells completed 2
Production 3500
Salt water 1

PIEDRAS PINTAS

Walsh, Humble Oil & Ref. 4 1000

Wells completed 1
Production 1000

SPINDLETOP

Gladys, Gulf Prod. 218 50
Henderson, Weber King 1 15
Gladys, Yount-Lee Oil 1 ..... abd
Gladys, Hamm Brechlin Co. 2 ..... abd
Keith-Ward, Stella Oil 7 ..... abd

Wells completed 7
Production 65
Abandoned 3

SARATOGA

Teel, Rio Bravo Oil 2 ..... sw
Hooks, San Bernard Oil 18 15

Wells completed 2
Production 15
Salt water 1

SOUR LAKE

Bashara, Humble Oil & Ref. 19 15
Hardin, Lake View Oil 45 ..... sw

Wells completed 1
Production 15
Salt water 1

VINTON

Gray, Vinton Pet. 3 75
Rescue, Vinton Pet. 16 200
Vincent, Edgerly Pet. 9 160

Wells completed 3
Production 435

WEST COLUMBIA

Lee, Hyde Production 1 ..... abd
Wilson, Humble Oil & Ref. 1-B 75

Wells completed 2
Production 75

MISCELLANEOUS

Duval County—
Peters, United States Gas & Oil 1 ..... dry
Dinn, Cooperative Oil 2 ..... abd

Fort Bend County—
Davis, Gulf Prod. 6 ..... abd
Lockwood, Marland Oil 5 ..... abd

Harris County—
Warren ranch, Hockley, The Texas Co. 4, 5 ..... abd
Weems, Rycade Pet. 1 ..... abd

Chambers County—
Blencke, W. C. Moore 1 ..... abd

Jefferson County—
Thomas, Fannette Dome, Gulf Prod. 4 .. abd

Jackson County—
Rogers, Houston Oil 3 ..... abd

Refugio County—
Lambert, Houston-Gulf Gas 1 ..... abd
Breeding, Houston-Gulf Gas 1 ..... gas

Wharton County—
Schumaker, Boling Dome, The Texas Co. 1 ..... abd
Bay, Gayle & Weed 1 ..... abd

SOUTH LOUISIANA

Calcasieu Parish—
Industrial, Standard of La. 1 ..... wtr
Lutcher-Moore, Gulf Ref. 1 ..... abd
Verdine, Union Sulphur Co. 1 ..... abd

Wells completed 16
Gas 1
Abandoned and sulphur water 15

RIGS AND WELLS DRILLING
BATSON
Rigs
Milhome, S. R. Buchanan 36.
Hodges, Kirby Pet. 4.
Wells Drilling
Hodges, Kirby Pet.-Capital Oil 3.
Davis, Ada Bell Oil 104.
La Jarza, The Texas Co. 1.
Paraffine, Acorn Oil 58.
State Land, East Batson Oil 11.
Christian, Peer Oil 1.
Smith, Gulf Prod. 1.
Rigs, 2; wells drilling, 7; total, 9.

BOLING
Rigs
Taylor, Atlantic Oil Prod. 1, 2.

BLUE RIDGE
Wells Drilling
Blakely, Gulf Prod. 13-C.

BIG CREEK
Rigs
Davis, Union Sulphur 1.
Wells Drilling
Davis, Gulf Prod. 26.
Rigs, 1; wells drilling, 1; total, 2.

DAYTON
Wells Drilling
Liberty, Old Colony Oil 11.
Dayton, Dayton Oil 4.

GOOSE CREEK
Rigs
Bartlett-Smith, Sun Co. 15.
Galliard fee, Gulf Prod. 12.
Wells Drilling
Smith, Humble Oil & Ref. 1, 12, 64, 66.
Peninsula, Humble Oil & Ref. 29, 30.
Galliard, Gulf Coast-Crown Central 39.
Bryan, Powell Oil 6.
Beaumont, Gulf Prod. 32.
Galliard fee, Gulf Prod. 19.
Chapman-Bryan, Gulf Prod. 11.
Wright, Gulf Prod. 10-A.
Rigs, 2; wells drilling, 12; total, 14.

HUMBLE
Rigs
Fee, The Texas Co. 2.
Weed, Sutherland et al 2.
Wells Drilling
Fee, The Texas Co. 1.
Bender, Sun Oil Co. 1.
Hirsch, F. M. Long 5.
Harvey, Woodruff Dev. 1.
Cherry, Louisiana O. & R. 20.
——, Kavanaugh et al 1.
Rigs, 2; wells drilling, 6; total, 8.

HULL
Rigs
Dolbear, Republic Prod. 20 (wo).
Wells Drilling
Dolbear, Republic Prod. 36 (wo), 68.
Phoenix, Gulf Prod. 60, 61, 62, 63.
Morris-Phillips, Gulf Prod. 21.
Baldwin, Gulf Prod. 15.
Guedry, Humble Oil & Ref. 19.
Merchant, Humble Oil & Ref. 4.
Taylor, Mecom Oil 8.
Carr, Sun Oil Co. 8.
Barngrover, Empire Gas & Fuel 17.
Merchant, Yount-Lee Oil 12.
Rigs, 1; wells drilling, 14; total, 15.

HIGH ISLAND
Rigs
Smith, Gulf Prod. 1.
Wells Drilling
Smith, Gulf Prod. 4.
Cade, Sun Co. 6, 6-C, 8.
Rigs, 1; wells drilling, 4; total, 5.

JENNINGS
Rigs
Jennings-Clement, Gulf Ref. 38.
Wells Drilling
Latrielle, The Texas Co. 103.
Clement, F. I. Getty 2.
Rigs, 1; wells drilling, 2; total, 3.

MARKHAM
Rigs
Myers, Houston-Gulf Gas Co. 2.
LOCKPORT
Rigs
Miller, Vacuum-Gulf Co. 6.
Bordages, Vacuum-Gulf Co. 2.
Wells Drilling
Miller, Vacuum-Gulf Co. 5.
Farquhar, Vacuum-Gulf 2.
Freidberg & Wolf 1.
Phoenix, Marland Oil 1.
Rigs, 2; wells drilling, 4; total, 6.
ORANGE
Rigs
Chesson, Humble Oil & Ref. 26.
Hager fee, Gulf Prod. 20.
Kishi-Lang, Gulf Prod. 8-B.
Wells Drilling
McLain, Brownie Babbittee Oil 6.
Chesson, Continental Oil 1, 7, 10 (wo's).
Chesson, Humble Oil & Ref. 24, 25.
Barber, Humble Oil & Ref. 1.
Carbello, Edgerly Pet. 1-B.
McGuire, Kishi Dev. 7.
Cow Bayou, Rycade Pet. 13, 14, 4.
Hager, Gulf Prod. 8 (dpng.).
Kishi-Lang, Gulf Prod. 2 (dpng.).
Johnson, Sun Co. 1
Rigs, 3; wells drilling, 15; total, 18.
PIERCE JUNCTION
Rigs
P. & F., Rio Bravo Oil 2.
Cain, Navarro Oil 2.
Wells Drilling
Settegast, Rio Bravo Oil 2-P.
Taylor, Gulf Prod. 15 (wo.).
Howe, H. R. Cullen 6.
Rigs, 2; wells drilling, 3; total, 5.
SPINDLETOP
Gladys, Yount-Lee Oil 2.
Wells Drilling
Gladys, W. B. Flynn 1.
McFadden, Yount-Lee Oil 2, 3.
Trembly, Baker Oil 14.
Terrell, Lillian Oil 2.
Rigs, 1; wells drilling, 4; total, 5.
SARATOGA
Wells Drilling
Teel, Vacuum Oil 2.
Lewis, Paggi Oil 18.
B. & R., Rio Bravo Oil 3 (wo.).
SOUR LAKE
Rigs
Bashara, Humble Oil & Ref. 20.
Wells Drilling
Hardin, Lake View Oil 45.
Fee, Gilbert Oil 13.
Fee, The Texas Co. 298.
Rigs, 1; wells drilling, 3; total, 4.
SOUTH LIVERTY
Wells Drilling
LeCour, East Texas Oil 1.
Antonio, Gulf Prod. 5.
VINTON
Rigs
Gray, Vinton Pet. 5.
Wells Drilling
G. N. G., Gulf Ref. 48.
Star, Gulf Ref. 38.
Gray, The Texas Co. 1-A.
Gray, The Texas Co. 1-C.
Vincent, Edgerly Pet. 8 (wo.).
Gray, Marrs McLean 8.
Rigs, 1; wells drilling, 6; total, 7.
WEST COLUMBIA
Rigs
Underwood, Gulf Prod. 3.
Arnold, The Texas Co. 22.
Wells Drilling
M. & W., Humble Oil & Ref. 2.
Rigs, 2; wells drilling, 1; total, 3.

SOUTHWEST TEXAS FIELDS

Summary of Operations for December, 1925

Luling	4	1,420	0	0	2	6	8
Laredo	9	800	1	4	2	10	12
Somerset	3	28	0	0	0	5	5
Rockdale-Minerva	16	272	1	1	1	9	10
Jim Hogg Co.	8	1,575	0	0	4	10	14
Lockhart	12	1,455	5	0	2	10	12
Miscellaneous	8	300	5	2	22	42	64
Total Dec.	60	5,850	12	7	33	92	125
Total Nov.	50	4,252	13	7	47	91	138
Difference	10	1,598	1	0	14	1	13
Grand Total							
Gulf Coast	86	22,874	35	0	40	146	186
S.W. Fields	60	5,850	12	7	33	92	125
Total Dec.	146	29,724	47	7	73	238	311
Total Nov.	140	42,432	43	7	91	255	346
Difference	6	12,708	4	0	18	17	35

WELLS COMPLETED
LULING
Allen, United North & South Oil..... 100
McKean, United North & South Oil 19 1000
McKean, United North & South Oil, 20 300
Callahan, United North & South Oil 1 20

Wells completed 4
Production 1420

LAREDO
Bruni, Cole Pet. 11..... gas
Bruni, Cole Pet. 12..... gas
Bruni, Rydal-Crown Central Pet. 2.... gas
Bruni, Rydal-Crown Central 1..... 125
Morgan, Houston-Gulf Gas 1 ..... gas
Laurel, Houston-Gulf Gas 1 ..... abd
Aviator, G. M. Ball 7 125
Aviator, Crown Central Pet. 1..... 150
Aviator, Keene et al 1..... 400

Wells completed 9
Production 800
Gas 4
Abandoned 1

SOMERSET
Smith, Helvetia Oil 2 8
Smith, Helvetia Oil 5 10
Weaver, Helvetia Oil 14 10

Wells completed 3
Production 28

ROCKDALE-MINERVA
——, Anchor Oil 9 8
——, Anchor Oil 10 12
Bluebonnett, Roundtree et al 10..... 15
Bluebonnett, Roundtree et al 13..... 10
Gaither, Rockland Dev. 2 30
Lewis, Roy Long 4 10
Lewis, Roy Long 13 10
Gaither, Rockdale Dev. 2 60
Branch, Jennings Oil 11 30
Phillips, J. A. Lee 8 10
Phillips, J. A. Lee 9..... 10
Holman, Great Republic Oil 1..... abd
Gaither, Bowman Oil 5 7
Coulter, Clear Lake Oil 7..... 20
Coulter, Triangle Oil 1 40
Phillips, Noack Oil 1 ..... gas

Wells completed 16
Production 272
Gas 1
Abandoned 1

JIM HOGG COUNTY
Martinez, O. W. Killiam 24..... 300
Martinez, O. W. Killiam 25..... 250
Martinez, O. W. Killiam 26..... 300
Martinez, O. W. Killiam 27..... 100
Martinez, O. W. Killiam 28..... 200
Martinez, O. W. Killiam 29..... 150
Martinez, O. W. Killiam 30..... 150
Martinez, Magnolia Pet. 9..... 125

Wells completed 8
Production 1575

LOCKHART
Hemphill, G. M. Ball 4..... 300
Allen, J. W. Hooser 1..... 300
Allen, J. W. Hooser 2..... dry
Allen, Chas. Houston 1..... 50
Cranfield, J. W. Hooser 3..... 275
Cranfield, J. W. Hooser 4..... 200
Cranfield, J. W. Hooser 5..... dry
Allen, Adams & Co. 1 ..... dry
Brewer, Witherspoon Oil 6..... 250
Wilford, Schroder et al 1..... sul. water
Berry, J. K. Hughes Dev. 1..... abd
Cradwell, Johnson Bros. 1..... 50

Wells completed 12
Production 1455
Dry and abandoned 5

MISCELLANEOUS
Kleberg County—
King, Humble Oil & Ref. 2..... 300
Medina County—
Nixon, Arnett Oil 2 ..... dry
Victoria County—
Reeves, Houston Gulf Gas 1..... abd
Live Oak County—
Freeman, Plateau Oil 3..... dry
Starr County—
Kelsey, Hadley et al 2..... abd
Live Oak County—
Cartwright, Houston Oil 11..... gas
Cartwright, Houston Oil 12..... gas
Reagan, The Texas Co. 3..... abd

Wells completed 8
Production 300
Gas 2
Dry and abandoned 5

RIGS AND WELLS DRILLING
LULING
Rigs
Callahan, United North & South 2.
Walker, Detex Oil 1.
Wells Drilling
Kelly, United North & South Oil 1.
Bridges, Detex Oil 1.
Stair, United North & South Oil 11.
Baker, United North & South Oil 30.
Incore, Detex Oil 1.
Moore, United North & South 13.
Rigs, 2; wells drilling, 6; total, 8.
LAREDO
Rigs
Puig, G. M. Ball 8.
LaGarza, W. F. Morgan 3.
Wells Drilling
Bruni, Cole Pet.-Houston Oil 13, 14.
Wolcott, Magnolia Pet. 1.
Albercas, Rydal-Crown Central Pet. 2.
Reiser, Marts et al 2.
Jennings, The Texas Co. 2.
Carcia, Snowden & McSweeney 1 dpng.
Tex-Carolina, Morgan et al 3.
Tex-Carolina, Houston Gulf Gas 3, 4.
Rigs, 2; wells drilling, 10; total, 12.
SOMERSET
Wells Drilling
Easterwood, Ballard & Underwood 1, 2.
Langley, Witherspoon Oil 8.
Hartung, Grayburg Oil 19.
Langley, Frontier Oil 8.
Wells drilling, 5.
ROCKDALE-MINERVA
Rig
Phillips, Tex Pet. 3.
Wells Drilling
Dilworth, National Ref. 1.
Bluebonnett, Roundtree et al 11.
Gaither, Rockdale Dev. 5.
Goluter, Clear Lake Oil 8.
——, Simms Pet. 1.
Newton, Joe Terrell 1.
——, Anchor Oil 11.
Branch, Jennings Oil 12.
Gaither, Bowman Oil 6.
Rig, 1; wells drilling, 9; total 10.
JIM HOGG COUNTY
Rigs
Martinez, Magnolia Pet. 10, 11.
Martinez, O. W. Killiam 33.
——, Simms Pet. 2.
Wells Drilling
Martinez, O. W. Killiam 31, 32.
Merchants, Magnolia Pet. 3, 4.
Banks, Andrews Pet. 1.
Vela, Beauchamp et al 1.
Allen, Rydal-Rycade Pet. 1.
Survey 335, Kirkpatrick et al 1.
Survey 336, Carson et al 1.
Martinez, Magnolia Pet. 10.
Rigs, 4; wells drilling, 10; total 14.
LOCKHART
Rigs
Jolly, J. B. Ash 1.
Crenshaw, Chas. Houston 3.
Wells Drilling
Crenshaw, J. W. Hooser 6.
Cardwell, Gulf Prod. 23.
A. T. Cardwell, C. N. White 9.
Riddle, Gulf Prod. 15, 16.
Jolly, Pettus & Bell 1.
Brewer, Witherspoon Oil 7.
Cardwell, Johnson Bros. 2, 3.
Hemphill, G. M. Ball 5.
Rigs, 2; wells drilling, 10; total, 12.

LA.-ARKANSAS FIELDS

Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Union County	43	2,670	10	7	21	99	120
Ouachita Co.	23	1,445	7	1	10	43	53
Nevada County	3	60	1	0	1	2	3
Stephens	3	310	0	1	2	2	5
Caddo	13	822	1	1	5	31	36
Cotton Valley	2	190	0	0	11	19	30
Red River	1	35	0	0	0	2	2
Urania	7	1,190	0	0	2	6	8
La. wildcats	4	0	2	2	10	51	61
Ark. wildcats	6	20	5	0	15	31	46
Total Dec.	105	6,742	26	12	77	287	364
Total Nov.	94	5,590	33	19	73	171	244
Difference	11	1,848	7	7	4	116	110

COMPLETIONS
UNION COUNTY, ARK.
6-16-15 Flenniken, Amerada Pet. Co. 11 80
12-16-17 Hodges, Bostick Drg. Co. 1... 25
24-18-16 Coombs, Carnahan et al 1.... dry
6-16-15 James, Crawford & Sebastian 6 . . . . . dry
7-16-15 Tatum, Daniels-Rowe 7..... 300
7-16-15 Tatum, Daniels-Rowe 8..... 240
4-19-16 Fletcher, Dreen et al 1..... dry
15-16-15 Murphy, Eason et al 6..... 150
6-16-15 Flenniken, Federal Pet. Co. 5. 30
13-16-16 Howard, Gulf Ref. Co. 1..... dry
6-16-16 Werner, Gulf Ref. Co. 43..... 75
16-16-15 Cook, Jones, E. M. 3..... 40
17-16-15 Henshaw, Keene & Woolf 2.. 125
7-16-15 Murphy, Lion O. & R. Co. A-7 200
8-16-15 Murphy, Lion O. & R. Co. C-11 200
8-16-15 Murphy, Lion O. & R. Co. G-5 225
4-16-16 Saxon, Livingston et al 1.... 75
3-16-15 Fee, Lyell, J. S. 11..... gas
7-16-15 Hatfield, Magnolia Pet. Co. 8.. 25
7-16-15 Hatfield, Magnolia Pet. Co. 9.. 140
7-16-15 Hisecier, Magnolia Pet. Co. 2. 80
10-16-15 Lawton, Mazda Oil Co. R-4.. dry
9-16-15 Murphy, T. C., Murphy O. & G. 8 200
17-16-15 Harrell, Natural Gas & Pet. Co. B-5 300
10-16-15 Lawton, Natural Gas & Pet. Co. C-3 . . . . . gas
8-16-15 Murphy, Natural Gas & Pet. Co. D-3 . . . . . gas
10-16-15 Pate, Ohio Oil Co. 12..... gas
9-16-15 Parnell, Olds et al 4..... 10
6-16-15 Ferguson, Parrish et al 4.... 150
7-16-15 Thompson, Phillips Pet. Co. 2 gas
16-16-15 Cook, Ramage, A. H. 2..... dry
10-16-15 Lawton, Ramage, A. H. C-9.. gas
9-17-16 Dumas, Raines et al 1..... 40
8-16-15 Flenniken, Roxana Pet. Co. C-5 200
1-16-17 McGraw, Snowden & McSweeney 1 . . . . . dry
36-17-16 Goodwin, C. H., Standard Oil Co. 5 5
3-16-15 Graves, Southern Crude Oil Producing Co. 9 . . . . . gas
28-16-14 Davis, Stone Oil Co. 1..... dry
4-16-15 Hayes, The Texas Co. 4..... 350
12-16-17 McGraw, The Texas Co. 1..... dry
6-16-15 Wilson, Thurman et al 7.... 100
6-16-15 Wilson, Thurman et al 8.... 125
29-18-15 Thurlkill, Weiss & Goodla 1. dry

Wells completed 42
Production 2670
Dry 10
Gas production 204,000,000

OUACHITA COUNTY
34-15-16 Turnage, Ark. Drg. Co. 1.... dry
32-15-15 Rhoten, Bailey & Murray B-7 40
32-15-15 Berry, Crosbie, J. E. 12..... dry
32-15-15 Umsted, Gulf Ref. Co. A-13.. gas
31-15-15 Laney, Houston Oil Co. 11.... 150
26-15-16 Arnold, Humble O. & R. Co. B-7 20
22-15-17 Goodwin, B., Humble O. & R. Co. 1 . . . . . dry
5-16-15 McClannahan, Imperial Oil & Gas Co. 7 90
5-16-15 Goodwin, Magnolia Petroleum Co. 5 200
26-15-16, Lewis Ohio Oil Co. B-7.... 20
33-15-15 Joyce, Phillips Pet. Co. 14... dry
33-15-15 Joyce, Phillips Pet. Co. 18... dry
34-15-15 Johnson, Phillips Pet. Co. 7.. 235
25-15-17 Fee, Reynolds et al 1..... 20
25-15-17 Fee, Reynolds et al 2..... 20
28-15-15 Murphy, W. B., Simms Oil Co. 7 150
6-16-15 Flannigan, Superior Oil Co. 2 90
34-15-15 Snyder, Sure Oil Corp. 2.... dry
28-15-16 Hughes, Sutton et al 9..... dry
33-15-15 Berry, The Texas Co. 16..... 85
34-15-15 Johnson, The Texas Co. 8..... 75
2-16-15 Wright, The Texas Co. 1..... 90
4-16-15 Umsted, Woodley Pet. Co. 3. 160

Wells completed 23
Production 1445
Dry 7
Gas 1
Gas production 25,000,000

STEPHENS-OUACHITA
22-15-19 Cult, Buffalo Oil Co. 1..... gas
22-15-19 Morgan, Buffalo Oil Co. 3.... 300
STEPHENS-COLUMBIA
36-15-20 Rhinehart, Magnolia Pet. Co. 5 10

Wells completed 3
Production 310
Gas 1
Gas production 15,000,000

NEVADA
10-14-21 McKinney, Autry Oil Co. 1.. 10
2-14-21 Ellis, Greason et al 1..... 50
11-14-21 Wallace, Steele et al 1..... dry

Wells completed 3
Production 60
Dry 1

CADDO
24-21-15 Peak, Austin Oil Co. 21..... 12
33-21-16 Murphy, Chew, W. C. 1..... 15
24-22-15 Hoss, Dixie Oil Co. 5..... dry
13-21-15 Robertson, Dixie Oil Co. 53.. 500
23-22-16 Worley, Dixie Oil Co. 2..... 2
22-21-15 Raines, Fortuna Oil Co. 21.. 105
22-21-15 Raines, Lewis Oil Co. 13..... 7
15-21-15 Union Oil & Gas Co., O'Dell & Lawton 1 6
15-21-15 Red Bayou, O'Dell & Lawton 2 150
13-20-15 Youree, Randolph - Richardson, D. C. 2 . . . . . gas
22-21-15 Jolly, Shawnee Pet. Co. 4.. 10
27-21-16 Stiles, Standard Oil Co. 174.. 10
15-21-15 Raines, The Texas Co. 17..... 5

Wells completed 13
Production 822
Dry 1
Gas 1
Gas production 500,000

COTTON VALLEY
27-21-10 Gray, Ohio Oil Co. 20..... 90
16-21-10 Sidney, B., Ohio Oil Co. 5.... 100

Wells completed 2
Production 190

RED RIVER
7-12-10 Continental-Polly, Fortuna Oil Co. 35 35

URANIA
19-10-2e Urania-Alex., Urania Oil Co. 1 30
25-10-1e Urania, Beckman et al 2..... 5
36-10-1e Ring, Craig et al 1..... 300
19-10-2e Urania, Keene & Woolf 1..... 200
36-10-1e Doty, Love, Cleve 1..... 50
30-10-2e Tremont, La. Oil Ref. Corp. 1 75
19-10-2e Urania, Urania Pet. Co. 10.. 30

Wells completed 7
Production 1190

LOUISIANA WILDCATS
Bossier Parish—
38-23-11 Henry Rose, The Texas Co. 1 gas
31-23-11 Bolinger, Atlantic Oil Prod. Co. 1 . . . . . gas
LaSalle Parish—
4-8-2e L. & A. Oil Co., Dixie Oil Co. 2 dry
Sabine Parish—
24-5-12 Pickering Lbr. Co., Toro Pet. Co. 1 . . . . . dry

Wells completed 4
Dry 2
Gas 2
Gas production 83,000,000

ARKANSAS WILDCATS
Bradley County—
25-15- 9 Benson, Gulf Ref. Co. 1..... dry
Calhoun County—
35-15-13 Freeman Lbr. Co. Jernell et al 1 . . . . . dry
Columbia County—
30-19-18 Hays, Natural Gas & Pet. Co. 1 . . . . . dry
Lafayette County—
16-15-22 Reed Bodcau, Humble Oil & Refining Co. 1 . . . . . dry
18-19-24 Allen, Ark. Fuel Oil Co. 1.... 20
Nevada County—
22-14-20 Lester Holton, Brewer et al 1 dry

Wells completed 6
Production 20
Dry 5

DRILLING OPERATIONS
UNION COUNTY, ARK.
Rigs
1-16-17 LaGrone, Arkansas Fuel Oil Co. 8.
17-16-15 Cook, J. W. Clark 7.
9-16-15 Palmer, J. W. Clark 5.
6-16-16 Werner, Gulf Ref. Co. 45.
1-16-17 Anderson, Johnson Drilling Co. 3.
10-16-15 Lawton, E. M. Jones 3.
7-16-15 Murphy, Lion O. & R. Co. A-6, A-8.
8-16-15 Murphy, Lion O. & R. Co. D-6.
3-16-15 Fee, J. S. Lyell 12.
7-16-15 Hatfield, Magnolia Pet. Co. 3.
5-16-15 Flenniken, Moco Oil Corp. 7, 9, 11.
17-16-15 Vestal, Murdock et al 7.
4-17-16 Porter, Owens et al 1.
7-16-15 T. D. Murphy, Roxana Pet. Corp. 4.
7-16-15 Lawton, Southern Crude Oil Purchasing Co. 4.
9-16-15 Murphy, Stewart et al 4.
18-17-14 Ezell, Jim Stock B-2.
17-16-15 Flenniken, Thurman et al 1.
Wells Drilling
15-16-15 Murphy, Anderson et al 2.
34-15-16 Turnage, Ark. Drilling Co. 2.
8-16-15 Bradford, Broderick & Calvert 4.
7-16-15 Tatum, Sam Cook 7, 8.
8-16-15 James, Crawford & Sebastian 10.
8-16-15 Murphy, Crown Central Pet. Co. 7.
7-16-15 Tatum, Rowe Daniels A-1.
7-16-16 Howard, Ferguson Drilling Co. 1.
16-16-16 Saxon, Fitzwater et al 1.
1-16-17 Hodges, W. H. Gilliland 2.
5-18-14 J. A. Rowland, Grimes & Jones 1.
3-16-15 Graves, Gulf Refining Co. 8.
1-16-16 Primm, Gulf Refining Co. 5.
6-16-16 Werner, Gulf Refining Co. 44.
7-16-16 Carroll, Harrell, trustee, 1.
18-16-15 Smith, F. C. Henderson 2.
10-16-15 Giller, Hollyfield et al 3-A.
36-17-16 Springer, Howell & Knowles 1.
15-16-15 Giller, Humble Oil & Ref. Co. 5.
16-16-15 Cook, E. M. Jones 5.
17-16-15 Murphy, E. M. Jones 2, 1, 3, 5.
3-16-15 Williams, Kennebrew et al 1.
17-16-15 Sanford, W. R. Keever 4.
7-16-15 Tatum, Laurel Oil & Gas Co. 5.
31-16-14 Davis, Liberty Oil Co. 2.
8-16-15 Bilyew, Lion Oil & Ref. Co. C-4.
3-16-15 Graves, Lion Oil & Ref. Co. 9, 10.
10-16-15 Lawton, Lion Oil & Ref. Co. B-2.
16-16-15 LeCroy, Lion Oil & Ref. Co. 2.
7-16-15 Murphy, Lion Oil & Ref. Co. A-12, A-13, C-10.
17-16-15 Harrell, Little Fay Oil Co. 4, 5.
12-16-17 Scott, N. J., Magnolia Pet. Co. 3.
12-16-17 Scott, R. O., Magnolia Pet. Co. 2.
15-16-15 Murphy, Marine Oil Co. B-5.
16-17-15 Moody, Patt Marr 1.
4-16-15 Hays, Murdock et al 7.
17-16-15 Vestal, Murdock et al 7, 8.
17-16-15 Harrell, Natural Gas & Pet. Co. A-3.
15-16-15 Ballard, Natural Gas & Pet. Co. 5.
17-16-15 Murphy, Natural Gas & Pet. Co. B-5.
11-16-15 Alphin, Phillips Pet. Co. 5.
1-16-16 McDonald, Penguin Oil Co. 6.
15-17-16 Dumas, Reynolds, J. D. 1.
9-16-15 Murphy, Shreveport Oil Corp. B-5.
8-17-14 Brown, Russell et al 1.
16-16-15 Murphy, Simms Oil Co. A-1.
7-16-15 Lawton, Southern Crude Oil Purchasing Co. 3.
15-16-15 Murphy, Sure Oil Co. 4.
1-16-16 McClanahan, Sun Oil Co. 1.
3-16-15 Alphin, The Texas Co. 9, 10, 11, 12.
12-16-16 McClanahan, Texas Oil Co. 1.
12-16-16 Houston, Thurman et al 1.
6-16-15 Wilson, Thurman et al 9.
7-16-15 Tatum, Thurman et al 1.
8-16-15 Bilyew, Unity Petroleum Co. 8.
7-17-14 Lyons, Wingfield et al 3.
Shut Down
4-16-15 Calloway, Amerada Pet. Corp. 5.
21-16-15 Jones, Belmont Oil Co. 1.
8-18-12 Garner, Bonderant et al 1.
16-17-14 Doss, Braswell et al 1.
18-17-14 Moodey, Clement Oil Co. 4.
1-16-16 Primm, Custer & Nash 1.
9-17-14 Kelly, Dobbs et al 1.
18-16-15 Murphy, George & Jones 5.

10-16-15 Lawton, E. M. Jones 2.
19-16-15 Murphy, Keene & Woolf 4.
17-16-15 Sanford, W. R. Keever 3.
7-16-15 Murphy, Lion Oil & Ref. Co. A-10.
17-17-14 Graves, Pat Marr 1.
5-16-15 Flenniken, Moco Oil Corp. 5, 6.
4-16-15 Hays, Murdock et al 2.
4-17-14 Perdue, Norris et al 1.
11-16-15 Barnett, G. H. Page.
7-16-15 Murphy, Page et al 1, 6.
6-16-15 Meriwether, Pure Oil Co. 7.
10-16-15 Lawton, Sam Richardson 5.
16-16-15 Cook, Simms Oil Co. 5.
6-16-16 Holloway, Smitherman - McDonald 1.
3-16-15 Lyell, Southern Crude Oil Purchasing Co. 7.
6-16-15 Hatfield, Sun Oil Co. 6.
3-16-15 Hays, Sun Oil Co. 18.
12-16-16 Kane, Vance et al 1.
16-16-14 Goodwin, Ward et al 1.
11-16-15 Hicks, Ward et al 1.
Rigs, 21; wells drilling, 99; total, 110.

OUACHITA COUNTY

Rigs

26-15-16 Arnold, Humble O. & R. Co. B-9.
6-16-16 Flannigan, Humble O. & R. Co. 9.
6-15-17 Bettie Clawson, Magnolia Petroleum Co. 3.
25-15-17 Smith, McCorkle et al B-2.
36-15-17 LaGrone, A. Meek, receiver, 1.
27-15-16 Hardin, Penguin Oil Co. 4.
27-15-16 Reynolds, Roxana Pet. Corp. 2.
29-15-15 N. B. Murphy, Simms Oil Co. 8.
6-16-15 Flannigan, Superior Oil Co. 4.
29-15-15 Richardson, Woodley Pet. Co. 4.

Wells Drilling

33-15-15 Bennett, Gulf Ref. Co. R-8.
6-16-15 Hinton, Houston Oil Co. 7.
3-16-15 Williams, Howell et al 5.
26-15-16 Arnold, Humble Oil & Ref. Co. B-8.
28-15-15 Hildebrandt, Humble O. & R. Co. 3.
31-15-15 F. A. and B. T. Laney, Humble Oil & Refining Co. 6.
31-15-15 H. Laney, Humble O. & R. Co. 4.
4-16-15 Jones-Umsted, Humble Oil & Refining Co. 6.
6-16-15 McClanahan, Imperial Oil & Gas Co. 9.
28-15-15 Snowhill Church, Kouri et al 2.
5-16-15 J. Goodwin, Magnolia Pet. Co. 10, 11.
5-16-15 Umsted, Marine Oil Co. 9.
34-15-15 Snyder, Marine Oil Co. 11.
26-15-16 Lewis, Ohio Oil Co. B-8, B-9.
35-15-15 Laney, Phillips Pet. Co. 10.
34-15-16 Johnson, Phillips Pet. Co. 8.
28-15-16 Brister, Pure Oil Co. 11.
27-15-18 Stout Lbr. Co., Pure Oil Co. 1.
13-16-17 Smith, J. D. Reynolds 1.
32-15-15 Rhoten, Sam Richardson 3.
28-15-15 Hildebrandt, Simms Oil Co. 5.
31-15-15 F. A. Laney, Simms Oil Co. 10, 11.
32-15-15 J. Griffin, Standard Oil Co. 9.
34-15-15 Powell, Standard Oil Co. 6.
32-15-15 Umsted, Standard Oil Co. 7, 31, B-5.
30-15-15 Johnson, Sun Oil Co. 5.
6-16-15 Flannigan, Superior Oil Co. 3.
33-15-15 Berry, The Texas Co. 10.
4-16-15 Fee, Sid Umsted 2.
22-14-17 Yarbrough, Vandiver et al 1.
4-16-15 Umsted, Woodley Pet. Co. 1.

Shut Down

5-15-17 Bettie Clawson, Magnolia Petroleum Co. 2.
4-13-17 Higgins, Neibert et al 1.
27-15-16 Hardin, Penguin Oil Co. 3.
28-15-15 Berg, Roxana Pet. Corp. A-4.
27-15-15 Reynolds, Roxana Pet. Corp. 1.
33-15-15 Umsted, Standard Oil Co. 12.
33-15-15 Berry, The Texas Co. 14.
Rigs, 10; wells drilling, 4; total, 52.

CADDO PARISH

Rigs

22-21-15 Hampton, Fortuna Oil Co. 22.
24-21-15 Wiley-Bradford, Fortuna Oil Co. 1.
15-21-15 Vespy, Lewis Oil Corp. 4.
12-21-15 E. K. Smith, Ohio Oil Co. 19.
3-15-15 Duke Williams, Ridge Oil Corp. 1.

Wells Drilling

30-19-15 Nickerson, Ark. Caddo Oil Co. 1.
23-22-15 Peak, Austin Oil Co. 22.
10-20-16 Files, Hatcher et al 1.
27-22-15 Jolly, Dixie Oil Co. 1.
13-21-15 Noel, Dixie Oil Co. B-2.
13-21-15 Robertshaw, Dixie Oil Co. 70.
8-20-15 Levee Board, Fortuna Oil Co. 2.
22-21-15 Raines, Fortuna Oil Co. 20.
15-21-15 Hampton, Fortuna Oil Co. A-7.
29-21-15 Spell, Fortuna Oil Co. 1.
4-19-16 La. Live Stock & Plant Co., Haynes Brothers 2.
16-20-16 Ferry Lake, Gulf Ref. Co. 223.
20-20-16 Ferry Lake, Gulf Ref. Co. 224.
29-22-15 Caldwell, Henderson et al 1.
15-21-15 Huckaby, Odell & Lawton 6.
1-21-15 J. B. Ardis, Ohio Oil Co. 1.
12-21-15 F. K. Smith, Ohio Oil Co. 18.
29-21-15 Hobbs, Page & Caldwell 1.
15-21-15 Lane et al, T. Schroder 1.
22-22-15 Jolly, Shamut Pet. Co. 2.
27-21-16 Stiles, Standard Oil Co. 175.
13-21-15 Mabry, The Texas Co. 9.
17-23-16 Starcke, W. J. Stanffer 1.
14-21-15 Herold, The Texas Co. 6.

Shut Down

18-17-11 Murff, Corbet et al 1.
28-19-11 McDade, Osborne et al 2.
5-20-15 Doan Thigpen, Fortuna Oil Co. 15.
17-18-16 Mitchell, Fortuna Oil Co. 1.
15-21-15 Files, Gulf Ref. Co. 6.
15-21-16 Federal Jeems Bayou, The Texas Co. 1.
Rigs, 5; wells drilling, 31; total, 36.

COTTON VALLEY DISTRICT

Rigs

24-21-10 Pardee, Alabama Pet. Co. A-4.
24-21-10 Pardee, Alabama Pet. Co. B-2.
21-21-10 Tiner, Fortuna Oil Co. 1.
28-21-10 Nelson, La. Oil & Ref. Co. 1.
22-21-10 Bank of Cotton Valley, Ohio Oil Co. 2.
15-21-10 Bodcau, Ohio Oil Co. 32.
15-21-10 Riggins-Cox, Ohio Oil Co. 1.
26-21-10 Gray, Ohio Oil Co. 3.
26-21-10 Gray, Ohio Oil Co. 21.
26-21-10 Gray, Ohio Oil Co. 22.
23-21-10 Holloway, Ohio Oil Co. 2.
28-21-10 Gleason, Tidal Oil Co. 2.
26-21-10 Gray, Woodley Pet. Co. 4.

Wells Drilling

8-20- 9 Bible, Fortuna Oil Co. 1.
23-21-10 Cox, Fortuna Oil Co. 1.
15-21-10 R. H. Coyle, Gulf Ref. Co. 1.
21-21-10 Marshall, Gulf Ref. Co. 1.
22-21-10 R. R. Cox, Humble Oil & Ref. Co.
27-21-10 Josey & Massey, R. W. Morton 1.
23-21-10 W. Cox, Ohio Oil Co. 1.
23-21-10 A. J. Hodges, Ohio Oil Co. 1.
15-21-10 W. E. Hodges, Ohio Oil Co. 2.
27-21-10 Sandlin, Ohio Oil Co. 3.
23-21-10 Davis, Palmer Corp. 1.

Shut Down

20-23-11 Weghost, J. F. Giles, Tr., 1.
13-21-10 Bodcau, Humble Oil & Ref. Co. B-5.
15-20-10 Hortman, McDowell et al 1.
26-21-10 Gray, Ohio Oil Co. 19.
10-19- 9 Lunsford, Victor Wenzell 1.
27-21-10 Gray, Woodley Pet. Co. B-3.
Rigs, 13; wells drilling, 17; total, 30.

LOUISIANA WILDCATS

Rigs

9-20-13 Bulkley, Benton Syndicate 1.
6-11-4e Cruse, Alexandria et al 1.
26-10-1e States, Alexandria Urania Oil Co. 1.
27-10-1e Sanders, Dickinson et al 1.
23-10-1e Tullos, Gould & Monroe Drilling Co. 1.
23-21-1e Harper, Gould & Monroe Drilling Co. 3.
25- 8-4e Rich, Mitchell et al 1.
39-19-4e Fee, Ladell et al 33.
1-19-4e Central, Palmer Corp. 1.
14-20-1e Reeves, Arkansas Fuel Oil Co. 1.

Wells Drilling

15-19- 7 Calhoun, Hanks et al 1.
14-23-14 Murray, Arkansas Fuel Oil Co. 1.
17-18-11 Hall & Rumbough, Square Deal Oil Co. 1.
9-18-11 Sandidge, C. D., Simms Oil Co. 1.
23-19-11 Strange, Olmsted et al 10.
5-21- 6 Heard, Clark & Melat 1.
10-19- 5 Mrs. P. L. Boatner, J. P. Evans et al 1.
13-19- 6 Baker, Triangle Drilling Co. 1.
9-12-11 Jenkins, Dixie Oil Co. 1.
32-12-15 Alexandria, Fortuna Oil Co. 1.
31-13-11 Willis Williams, Gulf Ref. Co. C-18.
9-12-11 Wemple, The Texas Co. A-9.
19-10-2e Urania, Alexandria Urania Oil Co. 2.
13-10-1e Urania, Ayers et al 2.
25-10-1e Urania, Beckman et al 3.
34-10-1e Urania, Dixie Oil Co. 1.
28-11-2e Holloway, Dowling & McMurray 1.
19-10-2e Urania, Keene & Woolf Oil Co. 2.
27-10-2e La. Central Lbr. Co., Sam Hunter 1.
29-10-2e Tremont, Louisiana Oil & Ref. Co. 2.
25-10-1e Tullos, Natural Gas & Pet. Co. 1.
24-10-1e Urania, Natural Gas & Pet. Co. 1.
24-10-1e Urania, Ohio Oil Co. 1.
16-20- 5 Grey, United Carbon Co. 1.
24-10-3e Goodwin, Dickinson & Frue 1.
32-19-2e D'Arbonne, Sam D. Hunter 1.
36-20-4e K. Cole, Palmer Corp. 1.
35-19-4e Fee, Southern Carbon Co. 47.
24-20-4e Archie, United Carbon Co. 1.
8-20-4e Scott, Natural Gas & Prod. Co. 1.
2-20-3e Schwab, United Carbon Co. 1.

Shut Down

18-17-11 Murff, Corbet et al 1.
28-19-11 McDade, Osborne et al 2.
30-12-3e Core, Potts & Crickett, Tr., 1.
7-19- 5 J. H. Cox, Triangle Drilling Co. 1.
31- 9-6e Nichols, Ferguson & Kimbrough Oil & Gas Co. 1.
10-11-14 Hewitt-Ricks, Bentley et al 1.
4-12-11 Jenkins, Gulf Ref. Co. A-33.
13-14-4w H. Rhymes, El Dorado Chief Oil Co. 1.
22-10-2e Urania, Columbia Oil & Gas Co. 1.
24-10-1e Russell, Davis & Meridith 1.
16-11-2e Love, Wright et al 1.
13-10-1e King, Zeigen et al 1.
11-21-7e Sullivan, R. C. Boisseau et al 1.
3-11- 8 Wafer, Amerada Pet. Corp. 1.
23-15-3e Cordell, Calvert et al 1.
6-16-1e Jones, Southern Carbon Co. 1.
29- 5-2e Barrow, Hincey & McKee 1.
3- 4-3e Lanker, Wheeler & Wilbanks 1.
8- 7-12 Bowman-Hicks Lbr. Co., L. M. Emlet 5.
6-10-2w Eagles, J. H. Hall 1.
Rigs, 10; wells drilling, 51; total, 61.

ARKANSAS WILDCATS

Rigs

33-16- 7 Fee, Brown et al 1.
1-17-6w Pine Prairie, Pine Prairie Oil Co. 2.
16-15-20 Rhinehart, Magnolia Pet. Co. 6.
15-17-22 Gantt, R. F. Maier et al 1.
20-18-22 Hamp Dickens, Pluto Oil Co.
25-15-26 Dale, Lenze et al 1.
22-14-26 Gillespie, Munn Oil & Gas Co. 1.
10-14-21 Womack, Autrey Oil Co. 3.
1-14-21 C. W. Water, Smitherman-McDonald 1.
1-14-21 Haynie, Steele et al 1.

Wells Drilling

20-15- 7 Bledsoe, Rhodes & Kirker 1.
31-15-13 Freeman Lbr. Co., Gulf Ref. Co. 1.
19-10-11 Mosley, Simms Oil Co. 1.
13-15-20 Brown, Hude & Aarnes 2.
35-13- 5 Ogle, McClintock & Goodka 1.
23-10-25 Garland, Burton et al 1.
14-11-25 Swafford, Tarver et al 1.
19-10-24 Allen, Arkansas Fuel Oil Co. 2.
18-19-24 Red River Land Co., Arkansas Fuel Oil Co. 1.
2-16-23 Knighton, Humble O. & R. Co. 1.
3-20-24 Red River Land Co., Kensaw Pet. Co. 2.
10-11-31 Hawkins, Mellick Oil Co. 1.
22-14-26 Munn, Buzzard Bluff Oil Co. 1.
26-17-28 Edwards, Tr., Humble O. & R. Co. 1.
2-14-21 Waters, Greason et al 2.

Shut Down

36-12- 9 Brown, Easley et al 1.
26-16-13 Freeman Lbr. Co., Harriss & Bickley 1.
29-15-14 Callon Lbr. Co., Magnolia Pet. Co. 1.
12- 9-20 Arnold, Virgil Heath, Tr., 1.
15-10-20 Brown, Whelen Oil Co. 1.
29- 9-10 Moore, Haley et al 1.
29-19-20 Peter Doss, Kentucky - Arkansas Pet. Co. 1.
20-16-18 Watts, Miller et al 1.
23-18-23 Robinson, Pluto Oil Co. 1.
7-19-19 Emerson, Russell & Kent 1.
25-18-10 Duffer, Smith & Co. 1.
4-20-21 Bodcau, Wingfield et al 1.
29-10-16 Owens, McNeil et al 1.
27-12-27 Hempstead Co. Gun Club, Grassy Lake Oil Association 1.
29-12-23 Toner, C. W. Robinson 1.
9-11-23 Sutton, Zing et al 1.
7- 3-10 Hensley, DeCou Oil Co. 1.
2-13-31 Allen, Grote et al 1.
36-15-27 Wiseman, Copien et al 1.
10-14-21 McKinney, Zing et al 1.
Rigs, 10; wells drilling, 36; shut down, 46.

ROCKY MOUNTAIN AREA

WYOMING

Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Big Muddy...	1	20	0	0	0	2	2
Salt Creek ...	40	10,726	0	0	17	44	61
Lance Creek..	2	1,425	1	0	0	3	2
Big Horn Basin	0	0	0	0	5	59	64
Lost Soldier & Carbon Co..	4	700	2	1	1	35	26
Rock River..	1	0	1	0	0	12	12
Fremont Co..	1	10	0	0	1	32	33
Osage	0	0	0	0	5	11	16
Natrona Co...	3	0	3	0	1	14	15
Lincoln and Uinta Cos..	0	0	0	0	4	13	17
Baxter Basin	0	0	0	0	0	7	7
Miscellaneous.	2	0	2	0	2	34	36
Total Dec..	54	12,881	9	1	36	265	301
Total Nov..	53	6,208	7	3	38	275	313
Difference..	4	6,673	2	2	2	10	12

MONTANA

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Sunburst	24	2,155	11	0	10	62	62
Cat Creek and Miscellaneous	6	176	3	0	5	89	94
Total Dec...	30	2,331	14	0	15	141	156
Total Nov..	48	3,742	18	2	22	152	174
Difference..	18	6,411	4	2	7	11	18

UTAH

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Total Dec....	1	400	0	0	2	31	33
Total Nov.....	0	0	0	0	2	32	34
Difference..	1	400	0	0	0	1	1

COLORADO

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Total Dec.....	4	2,900	2	1	10	99	118
Total Nov.....	5	1,950	1	1	17	94	111
Difference..	1	950	1	0	2	5	7

NEW MEXICO

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Total Dec....	28	2,250	4	0	5	140	145
Total Nov....	25	2,862	7	0	5	135	140
Difference..	3	512	3	0	0	5	5

WYOMING

BIG MUDDY

Wells Drilling

8-33-76 Humphrey, Continental Oil Co. 38.

Shut Down

2-33-76 Fenix, Continental Oil Co. 4.
Rigs, 0; wells drilling, 2; total, 2.

SALT CREEK

Rigs

13-39-79 SE, Blackstone Salt Creek 4-F.
34-39-79 SW, Mammoth Oil Co. 302.
34-40-78 NW, Mammoth Oil Co., 205.
28-39-78 NW, Mammoth Oil Co. 405.
28-39-78 NE, Mammoth Oil Co. 406.
13-38-78 SW, Wyoming Teapot Oil Co.
16-39-78 NE, Nicholaysen et al.
19-40-79 NE, Norris Oil Co. 18-A.
10-38-78 NW, Mammoth Oil Co. 202.
8-39-78 NE Sinclair Wyoming 11.
6-39-79 NE, Mt. & Gulf 29-A.
31-39-78 SE, Teapot Dev. Co.
35-40-79 SE, Midwest Oil Co. 31-A.
1-39-79 SE, Continental Prod. Co. 11-A.
6-39-78 SE, Mt. & Gulf 8-A.
5-39-78 NW, Carter Oil Co. 12-D.
8-39-78 NE, Western States 21-A.

Wells Drilling

19-40-78 SW, Midwest Oil Co. 34-A.
31-40-78 SW, Salt Creek Cons. 30-A.
2-39-79 SW, Continental Prod. Co. 4-LS.
19-40-78 SW, Utah Oil & Ref. Co. 12-A.
35-40-79 SE, Wyoming Asso. 3-A.
20-40-78 NW, Texas Prod. Co. 6-A.
29-40-78 NW, Texas Prod. Co. 29-A.
5-39-78 NW, Western States O. & L. 29-A.
12-40-79 NE, Empire State Oil Co. 33-A.
25-40-79 SW, Wyoming Oil Fields 12-L.
35-40-79 NW, Wyoming Asso 21-X.
32-40-78 SW, Jupiter Oil Co. 27-A.
32-40-78 SW, Continental Prod. Co. 18-B.
25-40-79 SE, Wyoming Asso. 21-L.
26-40-79 NW, Wyoming Asso. 4-L.
30-40-78 NW, Wyoming Asso. 4-A.
24-40-79 SW, Wyoming Asso. 8-A.
3-39-79 SE, Salt Creek Cons. 5-A.
19-40-78 SW, Midwest Oil Co. 34-A.
27-40-79 NE, Midwest Oil Co. 36-L.
27-40-79 SE, Midwest Oil Co. 1-L.
2-39-79 NW, Midwest Oil Co. 16-L.
25-40-79 NW, Midwest Oil Co. 13-L.
27-40-79 SE, Midwest Oil Co. 35.
34-40-79 NE, Midwest Oil Co. 2.
26-40-79 SW, Midwest Oil Co. 17-A.
19-40-78 SE, Texas Prod. Co. 28-A.

Shut Down

10-40-79 SE, Empire State Oil 25-A.
28-39-79 NE, Mammoth Oil Co. 101.
29-39-78 NE, Mammoth Oil Co. 108.
28-39-78 NE, Mammoth Oil Co. 304.
28-39-78 SW, Mammoth Oil Co. 302.
28-39-78 NW, Mammoth Oil Co. 205.
4-38-78 NW Mammoth Oil Co. 101.
23-39-78 NE, Evans Oil Co.
29-39-78 NW, Omaha Lusk Oil.
2-38-78 NE, Teapot Dome Synd. 34-A.
6-39-78 NE, Mt. & Gulf 34-A.
34-39-78 SW, Mutual Oil Co. 35-A.
24-39-78 NW, Mutual Oil Co. 22-AS.
19-39-78 NW, Kinney Coastal 19-A.
7-39-78 SE, Continental Prod. Co. 1-DD.
15-40-79 SE, Prairie Oil & Gas 16.
24-39-79 NE, Continental Oil Co. 22-AS.
Rigs, 17; wells drilling, 44; total, 61.

LANCE CREEK

Wells Drilling

3-35-65 Belle Cattle Co., Mutual Oil 7.

Shut Down

18-35-65 NE, Union Oil Co.
Rigs, 0; wells drilling, 2; total, 2.

BIG HORN BASIN

Rigs

23-44-95 Flavin, Ohio Oil Co.1.
5-47-90 Hetzler, Ohio Oil Co. 1.
32-56-97 Howell, Occidental Oil & Gas.
28-43-91 NW, Union Oil Co. A-1.
34-43-91 SE, Union Oil Co. A-1.

Wells Drilling

28-44-93 NE, F. A. McPherson.
29-56-97 SW, Utah Southern Oil.
31-48-90 Tensleep, Ohio Oil Co. 2.
19-46-98 State, Ohio Oil Co. 42.
7-54-93 Garry Oil & Dev. Co.
31-43-90 SW, Utah Oil & Ref. Co. 3.
15-49-91 Shaffer & Tilley.
18-46-98 Washakie, Ohio Oil Co. 4.
28-44-93 West Zimmerman Butte Oil.
19-46-98 Meeteetsee, Midwest Ref. Co. 16-A.
8-51-100 Union Oil Co.
11-49-102 Omar Oil & Gas.
20-53-101 NE, Washington Oil & Gas.
1-44-102 T. C. Clark et al.
23-44-95 NE, Utah Oil & Ref. Co.
21-53-101 Guiterman et al.
14-48-102 Big Horn Dev. Co.
20-53-101 Taylor Brothers.
7-46-98 Washakie, Ohio Oil Co. 2.
10-55-97 Lot 42, Standard Oil Co. 2.
33-56-97 Cross Gas Co., Ohio Oil Co. 2.
20-46-98 Mill Iron, Ohio Oil Co. 68.
17-46-98 Washakie, Ohio Oil Co. 1.
36-58-100 Local Oil Co.
5-51-97 SW, C. M. Carroll, et al.
9-54-94 SW, Wisconsin-Hines Co.
15-44-95 SW, F. L. Pierce.
North Crystal Creek, Empire Oil Co.
19-54-95 SW, Crystal Creek Synd.
32-47-100 NW, Prairie Oil & Gas.
31-48-99 SW, Midwest Ref. Co. 18.
23-44-95 Mt. States Pet. Co. 1.
19-46-98 State, Ohio Oil Co. 41.
3-56-97 Winther et al.
20-53-101 Elk Butte Oil & Gas.

Shut Down

3-44-96 NE, F. A. McPherson.
5-54-93 Royal Oil & Ref. Co.
29-56-97 NE, Utah Southern Oil Co.
35-57-97 NE, American Indian Oil Co.
4-51-100 Florence Oil Co.
3-55-97 Griffin, Allen Oil Co.
3-47-100 NE, Midwest Ref. Co.
34-56-97 Linton, Allen Oil Co.
31-45-99 NW, Kasoming Oil Co.
22-40-91 SW, Olympus Oil Co.
17-49-91 Frontier Oil & Gas.
27-46-98 Rankin, Dickie Oil Co.
8-46-98 Green Creek Prod.
3-56-90 Buck Petro. Co.
16-47-100 Big Horn Dev. Co.
17-46-98 Tunador Oil Co.
30-56-90 Prod. & Ref.
19-51-92 Bruce Holding Co.
34-43-93 C. D. Markham et al.
10-54-95 SE, Westland Oil Co.
35-55-95 Westland Oil Co.
25-53-100 NE, Pittsburgh Southwestern.
5-43-91 SW, S. Prod. & Refs.
11-49-102 T. A. Stancliff.
Rigs, 5; wells drilling, 59; total, 64.

LOST SOLDIER AND CARBON COUNTIES

Rigs

24-21-88 E. R. Goode.

Wells Drilling

11-26-90 Prod. & Refs. 3.
2-19-88 Prod. & Refs. 3.
14-20-88 SE, Lake Valley Oil Co.
16-25-86 General Pet. Corp.
3-26-90 Prairie Oil & Gas 58.
2-95-88 NW, Prod. & Refs. 3.
1-26-90 Prod. & Refs. 6.
2-19-88 Prod. & Refs. 3.
26-20-88 Prod. & Refs. 1.
2-26-90 SW, Utah Oil & Ref. Co. 3.
28-26-86 Portland Wyoming 3.
26-20-88 Prod. & Refs.
25-26-87 Prod. & Refs. 17.
14-20-88 Lake Valley Oil Co.
26-20-88 SE, Hatfield Oil Co. 1, 3.
34-26-88 Prairie Oil & Gas Co. 1-AX.
2-23-89 Prairie Oil & Gas Co. 2.
35-26-88 Prod. & Refs. 1.
9-21-84 St. Marys, Prod. & Refs. 1.
35-22-86 Sugar Creek, Prod. & Refs. 1.
20-21-89 Prod. & Refs. 13.
25-26-89 SE, Prod. & Refs. 17.
10-26-90 Prairie Oil & Gas Co. 65.

Shut Down

3-26-90 Sand Hills Oil Co. 5.
33-26-86 Gov't. Land, Columbia Pet. Co.
4-26-90 SE, Sand Hills Oil Co. 4.
33-26-87 SE, Marvin Oil Co.
33-24-88 Gov't. Land, Columbia Pet. Co.
9-26-90 SE, Major Oil Co.
34-27-90 M. M. Armstrong.
34-26-86 Portland Wyoming.
21-26-86 Portland Wyoming 3.
26-25-89 NW, E. R. Goode.
8-25-86 NE, General Pet. 2.
Rigs, 1; wells drilling, 35; total, 36.

ROCK RIVER

Wells Drilling

1-18-78 Dutton Creek, Midwest Ref. Co.
25-22-78 Foote Creek, Kasoming Oil Co.
34-20-78 SW, M. L. Landy.
23-21-79 SE, Southwestern Pet. Co.
18-22-78 SW, Texas Prod. Co.
8-17-77 SE, Texas Prod. Co.
13-17-77 Texas Prod. Co.

Shut Down

10-18-77 Carbon County Oil Co.
12-20-77 McLaughlin et al.
25-16-77 Rex Dome Oil Co.
26-21-79 SE, Southwestern Pet. Co.
34-23-79 NE, Central Pipe Line Co.
Rigs, 0; wells drilling, 12; total, 12.

FREMONT COUNTY

Rigs

15-33-91 E. T. Glenn.

Wells Drilling

24-32-95 Seal Oil Asso.
9-31-98 Martin F. Feld et al.
15-34-90 Ward Oil Co.
21- 1- 1 McDonald et al.
14-32-90 Meyers Pet. Co.
24-32-90 NW, Riverton Pet. Co.
7-27-95 Van Wyo., Prairie Oil & Gas 1.
19-27-95 Brimmer, Prairie O. & G. 2.
13-28-93 Spencer et al.
15- 6- 2 SW, Union Oil Co. 11.
10-28-92 SE, Union Oil Co.
18-28-92 Prod. & Refs. 1.
15- 6- 2 SE, Union Oil Co. 12.
10-32-95 Prod. & Refs. 5.
25-27-93 American Workers Oil (Zola.)
15-32-95 SE, Texas Prod. Co. 1.

Shut Down

15- 5- 2 NW, Mack Syndicate.
36-37-94 Wyoming Syndicate.
27- 6- 3 SW, Kinney Coastal Oil Co.
6- 6- 2 SW, Union of California 2.
10-36-94 NW, Myrin Oil Co.
21- 1- 1 Bridger Oil Co.
18-27-95 Sage Creek Pet. Co. 2.
29-27-95 Fremont Pet. Co.
14-32-95 NE, Prod. & Refs.
22- 6- 2 Miles City Oil Co.
3- 1- 2 NE, Teton Pet. Co.
4-31-95 Derby Dome Wyoming.
4-31-98 Burnside Oil Co.

15- 5- 2 Derby Dome Wyoming.
23-32-95 Prod. & Refs.
9-32-95 NE, Prod. & Refs. 2.
Rigs, 1; wells drilling, 32; total, 33.

OSAGE
Rigs
31-47-63 L. B. Hanson.
31-47-63 West Royalty Co.
Fawcett Ranch, Manlove et al.
31-46-63 Clark et al.
17-46-63 La Fleiche.
Wells Drilling
17-47-63 Wyoming Oil Co.
18-46-64 Fred Gravestead.
50-46-63 Fletcher Bros.
31-46-63 Tom Don Oil Co.
17-46-63 La Fleiche Oil Co.
8-46-63 John O'Brien.
36-46-63 John O'Brien.
Shut Down
1-45-61 Lenhart & Briggs.
11-45-65 Frederick Oil & Gas.
6-46-63 Osage Trust Co.
8-46-63 Griffith Oil Co.
Rigs, 5; wells drilling, 11; total, 16.

NATRONA COUNTY
Rigs
26-35-84 Clyde Brainnan et al.
Wells Drilling
3-33-83 Fargo Western Oil Co.
11-33-79 C. B. Mathewson.
15-32-95 Texas Prod. Co.
15-34-87 NE, Continental Oil Co.
11-32-92 New York Oil Co.
9-35-85 New York Oil Co.
25-36-85 Midwest Ref. Co. 18.
13-29-82 Chase, Ohio Oil Co.
20-37-80 Wyland, Texas Prod. Co.
10-35-85 New York Oil Co.
32-38-83 Wilson Dome, Marland Oil Co.
Shut Down
33-34-82 Bradford Wyoming Oil.
15-32-82 Bessimer Bend Dev. Co.
5-39-80 NW, Vernon Oil Co.
Rigs, 1; wells drilling, 14; total, 15.

LINCOLN AND UINTA COUNTIES
Rigs
3-16-113 Wyoming Reserve Oil Co.
31-28-113 Tip Top Oil Co.
12-39-113 Clinton Oil Synd.
1-28-114 Cretaceous Oil Co.
Wells Drilling
32-19-116 Conger et al.
Near Afton, Great Western Oil Co.
23-31-113 Three States Oil.
3-26-113 Superior Oil Co.
14-21-117 Pacific Properties Co.
15-21-117 Pacific Properties Co.
17-27-112 Elk Horn, Western Slope Oil Co.
6-15-118 Vulcan Oil Co.
7-28-114 Charles Lackey et al.
34-27-113 Wyotah Oil Co.
23-27-113 Fawcett Interests.
Shut Down
9-26-113 Uinta-Transcontinental Co.
32-19-110 Granger Oil & Gas.
Rigs, 4; wells drilling, 13; total, 17.

BAXTER BASIN
Shut Down
26-17-104 Associated Oil Co. 3.
23-17-104 SE, Associated Oil Co.
24-17-104 SE, Montical Oil Co.
8-16-104 SE, Montical Oil Co.
27-17-104 SE, Montical Oil Co.
30-18-104 Midwest Ref. Co. 6-AX.
26-17-104 SE, Associated Oil Co.
Rigs, 0; wells drilling, 7; total, 7.

MISCELLANEOUS
Rigs
Baggs Dome, M. M. Armstrong.
26-48-64 SE, Assoc ated Oil Co.
Wells Drilling
12-26-67 Platte River Drilling Co.
11-45-64 Reserve Oil & Gas Co.
8-44-60 Briggs & Sartain.
5-51-67 C. M. Carroll et al.
28-31-68 John Ackard et al.
29-49-64 Osage Trust Co.
1-44-61 NE, Gose Syndicate.
24-26-82 NW, Foreman et al.
20-33-74 NW, Horseshoe Syndicate.
23-27-93 Associated Oil Co.
28-42-78 Seattle Synd.
Guernsey Dist., Illinois Synd.
28-42-79 Montana Grant Oil Co.
Buffalo Dist., Kinney Coastal Oil Co.
32-19-110 Johnson Oil Co.
28-47-65 NE, Gose Syndicate.
17-47-82 Steel Creek, Tarrant Synd. 2.
15-33-68 SW, Schuyler et al.
1-32-65 Manville Oil & Gas.
15-32-68 A. E. Mauft et al.
32-52-87 SW, Western Consolidated.
35-48-64 NW, L. B. Lilley et al.
20-21-80 Prod. & Refs. 11.
4-32-82 SE, Carl Sackett et al.
23-45-62 SE, Olson-Spaulding Co.
7-48-82 Fairway Oil Co.
Shut Down
31-50-69 Roset Oil Co.
20-29-68 Nebraska Oil Co.
18-39-68 Glenco Oil & Gas.
6-28.62 Jay, Em, Foreman et al.
1-44-61 SW, Osage Trust Co. 2.
17-48-82 Hess, Carter Oil Co. 2.
9-41-80 Newcomb et al.
31-37-67 NW, Atlas Oil Co.
Rigs, 2; wells drilling, 34; total, 36.

MONTANA
CAT CREEK
Rigs
12-15-28 NE, Schaffer Oil Co.
Wells Drilling
11-15-29 Cooke-Coolidge-Ida 1.
12-15-28 NE, Standard of California 7.
21-15-30 Masser, Kessling Oil Co.
23-14-28 Winnet, Pacific Oil Co.
1-15-29 Custer Oil Co.
9-15-29 NE, Frantz Oil Co.
13-15-29 Green-Frantz Oil Corp. 10.
14-15-29 Clayton, Frantz Oil Corp. 15.
36-16-28 NE, Hardrock Oil Co.
5-15-29 Shaffer, Midwest Ref. Co.
7-15-29 NW, Hogan et al 2.
Shut Down
10-15-29 Fifty Six Pet. Co.
15-15-30 Swartz et al.
28-16-28 Republic Peerless 1.
9-15-27 Peerless Oil Co.
Rigs, 1; wells drilling, 15; total, 16.

KEVIN-SUNBURST
Rigs
11-35- 2 Stockmans Natl Bank.
29-35- 1 Benton, Arronow Oil Co.
4-32- 4 Swears, Beardsley 1.
20-34- 2 McBride, Canadian American Oil.
25-36- 2 Keskin, Troy Island Oil Co.
17-35- 1 Potlatch Oil Co. 2.
30-35- 1 Stannard, Wallace Oil Co. 2.
11-35- 2 Stockmans Bank, Ohio Oil 2.
20-35- 2 Whitman, Homestake Exploration.
31-35- 1 Steel, Big West Oil Co.
Wells Drilling
15-32- 2 Kenney, Ohio Oil Co. 2.
31-34- 1 Adams, Potlatch Oil Co. 1.
21-35- 1 White, Big Three Oil Co. 2.
35-35- 2 Able, Ferdig Hughes et al 2.
36-35- 2 State, Homestake Explo. 2, 3.
5-35- 2 F. M. Bell.
9-32- 2 Suhr, Sunburst Prod. Co.
33-34- 2 NE, Fraser Oil Co. 2.
8-34- 2 Pittsburgh Montana Oil.
32- 6- 2 Roundsley, Sunburst Oil & Gas.
24-32- 1 Shelby Syndicate.
28-37- 2 McAlphin, Spartan Oil Co.
20-35- 2 Halter, Sunburst Prod. Co.
13-34- 1 Skinner, Creel et al .
32-35- 1 Putnam, Keystone Oil Co.
7-34- 1 Harte, Russel et al.
32-36- 2 Farring, Nell Syndicate.
30-35- 1 State, Tri-State Oil 2.
9-34- 2 Falk, O'Haire et al.
14-35- 2 Hagerty, Sunburst Oil & Gas 1.
35-35- 2 Able, Sunburst Oil & Gas 1.
22-35- 2 SW, Lorenson et al.
10-35- 2 Bruins, Ohio Oil Co. 2.
2-34- 2 DeGroat, Ethridge Basin O. & G.
29-35- 1 Maughan, Sweeney Oil Co. 4.
18-30- 2 Ketley, Great Northern Prod.
2-34- 2 Shoemaker, California Co. 2.
25-35- 2 State, Homestake Explor. 2.
17-35- 2 Frazer, Rice Oil Co. 1.
30-35- 1 Stannard, Tri-State Oil 5.
26-35- 2 Abell, California Co. 5.
35-35- 2 Abell, Ferdig et al 2.
8-34- 2 Hurley, McDonald et al.
2-34- 2 State, Bruce Radigan 2.
32-35- 1 Warner, Duluth Hibbings Oil 1.
30-35- 1 Stannard, Rose Oil Co. 3.
25-35- 2 Byrne, Treasurer State Oil 1.
27-35- 2 Lorenson, Sunburst O. & G. 3.
25-35- 2 Stannard, B. C. Montana 5.
24-34- 1 Demare, Postlewaite et al (7).
7-34- 1 Wilcox, Western Montana Oil 1.
32-35- 2 Vietch, Pitts et al.
1-34- 2 Steel, Bruce Radigan 2.
26-35- 2 Byrne, B. C. Montana 4.
Shut Down
20-33- 1 Sollid, Flood Watson.
31-35- 1 Bryne, Fulton Oil Co. 6.
28-35- 1 Shelby, Federal-Miller.
23-33- 1 We.b, Shelby Oil & Gas.
12-34- 1 Peterson, Lucky Forty Oil.
13-33- 2 Campbell, Campbell Synd. 5.
16-34- 2 NW, Rainbow Oil Co.
1-34- 2 NE, Sunburst Oil & Gas.
Rigs, 10; wells drilling, 52; total, 62.

MISCELLANEOUS
Rigs
Porcupine Dome, Stellar Oil & Gas.
24-14-15 Fullerton Oil & Gas.
12-10-32 Hibbard Oil Co.
4-28-30 Mid Northern Oil.
34-23- 2 Rainbow Syndicate.
Wells Drilling
18- 2-29 Prairie Oil & Gas Co.
3-12-25 SW, Minn Flatwillow.
Larson Dome, Montana Belle.
34-22- 1 Great Northern Mutual Oil.
33-19- 7 SW, Hager Stephenson Oil.
24- 14- 2 Coal Creek Oil.
13-18- 2 Coal Ridge, Montana Oil & Gas.
5- 3-16 Montana Portland Oil.
33-16-28 H. H. Swartz, Jr.
9-31-19 California Co.
14-14-25 Flatwillow, A.M.Z. Synd.
32-25-30 Butler Oil & Gas.
24-30-12 Continental Prod.
17- 3-19 Snyder, Mid Northern Oil.
4-27-20 California Co.
20-24- 1 C. A. McDonald et al.
16-15-25 SW, Great Northern Mutual.
3-37- 2 Robinson et al.
Benton Lake, Browning et al.
McDonald Creek, Wilson Fisher 2.
32-36- 2 Weil Synd.
7- 8-57 NE, California Montana 1.
17- 3-18 NE, Gibson Land Co.
29-38-27 Glasgow Explo. Co.
13- 6-17 Mackey, Ohio Oil Co.
8-15-29 Deveraux, Deveraux Oil Co.
25- 1-21 Ainsworth, Neudigate Est., Inc.
18-30- 3 Kelley, G. N. Producers.
8-21-19 Bowes, California Co.
25-15-25 SW, Winnett Oil Co. 1.
26- 1-21 Modrell, Leonard Oil Co. 1.
4- 2-25 SW, C. B. McMemamin et al.
13- 2-25 Meyers, Walker Bros.
21- 7-21 SW, Atlantic Oil Co.
34-27- 6 NE, Orwell Jones.
Shut Down
5-35-21 NE, F. G. Gatland.
27- 3-24 SE, Murray Bros. 2.
5-20-24 American Indian Oil.
36- 1-12 State, Springvale Oil Synd.
20-25- 5 Larson, Edwards et al.
2-26- 2 Jones, W. M. Edwards.
18- 3-23 SW, Securities Prod. Co.
2-26- 2 Jones, W. M. Edwards.
5- 2-24 NE, American Indian Oil.
35-32-32 SW, Bowdoin Oil & Gas.
7-27- 7 NW, Circle Oil Co.
26-10-29 Stellar Oil & Gas.
32-30- 2 Denzer, Drake Oil Co.
21-14-28 Black Hawk Oil.
18- 6-24 Mennemier & Newman.
6-13-14 Fulton Oil Co.
26-14-20 Jackson Oil Co.
30-15-26 Winnett Shallow Oil Synd.
7-72- 1 Tri City Oil Co.
Devils Basin, Alberta Block Coal Co.
25- 2-27 Gladys Belle Oil.
Devils Basin, Montana Central Oil.
12-11-13 Kalispell Syndicate.
6- 5-25 Grey Eagle Oil.
2-28- 2 NE, Dry Fork Oil.
8- 4-23 NE, Hoosier Oil Co.
24- 5- 8 SW, Potter Basin Oil & Gas.
18-22- 3 SE, Elk Horn Oil & Gas.
10-18- 2 NE, Moscow-Idaho Oil.
28-30- 2 NW, West Virginia Oil.
27-36-12 SW, Mountain Chief 2.
9-12-14 Wilder, Glenholm Oil Co. 2.
24-14-25 NW, Henry Seibert.
14-31- 1 NW, Dunkirk Oil Co.
22- 4-91 SW, Olympus Oil Co.
6- 2-24 SE, American Indian Oil 2.
32- 4-16 SW, Consolidated Oil & Gas.
25-16-25 Gordon Campbell.
18- 3-23 SW, Murray Bros. 4.
Rigs, 4; wells drilling, 74; total, 78.

COLORADO
Rigs
8- 6-88 Dennis, Texas Prod. Co. 1.
10- 3-44 Yuma Valley Oil Co.
1- 8-68 Morrel, Petroleum Prod. Co.
17- 8-68 Fort Collins Chief Oil.
29-10-68 American Pet. Co.
12-38-70 Green, Mountain Pet. Co.
31- 9-68 Midway Oil & Gas.
27- 2-70 Mullin Synd.
27- 2-70 Rainbow Oil Dev. Co.
26- 9-69 Benson & Mitchell 1.
30- 9-68 NW, Farrel et al.
8- 9-68 NE, Union Junior Oil Co.
10- 3-44 SW, Hessick Drilling Co.
36-10-69 State, Seneca Oil Co.
13- 6-86 SE, Panuco Explo. Co.
9- 9-101 Maire, Gypsy Oil Co.
22- 4-92 Parkison, Midwest Ref. Co.
15- 4-91 Pohiman, Texas Prod. Co.
7-9-68 Buckeye, Union of California 4.
Wells Drilling
1- 9-69 Thimming, Union Oil of Calif.
8- 9-69 Warren, Union Oil of Colorado.
6- 7-68 Brown, Fifty-Four Oil Co.
3-35-68 Las Animas Synd. 1.
23-20-69 Continental Oil Co. 567.
22- 7-103 Ingram, Marland Oil Co.
18- 7-86 Babcock, Texas Prod. Co.
19-16-48 Schlotz, California Co.
13-33-13 Hall-Murray Co.
5- 8-103 Gypsy Oil Co.
24- 8-69 Lyons, Union of Calif.
30- 8-68 Water Co, Union of Calif.
31- 5-98 Morgan, Union Oil of Calif.
4- 6-68 Webster, Douglas Oil Co.
10-24-69 Panuco Explo.
28- 3-64 Watkins, Miller Oil Co.
34- 2-69 Johnson, Roland Oil Co.
24- 4-92 French, Midwest Ref. Co.
17- 5-64 Hog Branch, Roland Oil Co.
5- 6-68 Majestic Oil Co.
4-32-67 Tuma Oil Leasing Co.
34- 8-68 Ruff, Victory Oil Co.
9-12-62 Ulium, Roland Oil Co.
19-28-68 Panuco Explo.
4-45-16 Leidecker Pet. Corp.
1- 9-68 NW, Great Northern Oil Co.
25- 1-69 Everhard, Boulder Oil Corp.
30-27-45 NW, Lamar Oil Co.
30-10-68 Leroy, Wyoming Illinois Pet.
1- 5-65 Degan, A. A. Rollestone Oil Co.
6-10-69 Buckeye, A. A. Rollestone Oil Co.
35-22-65 NE, San Carlos Oil Co.
21- 3-91 Clark, Marland Oil Co.
6-23-52 State, Bent County Oil & Gas.
32- 8-68 Graham, Ho-Bart Pet. Co.
4- 6-68 Webster, Associated Oil Co.
6- 8-102 Lindguist, Midwest Ref. Co.
36- 7-103 Smith, Midwest Ref. Co.
30- 2-102 Texas Prod. Co.
14- 1-66 Smith, Retter Oil Co.
34-17-70 Mutual Oil Dev. Co.
28-20-69 Travis, Continental Oil Co.
12- 9-79 McCallum, Continental Oil Co.
4-20-69 Templeton, Continental Oil Co.
22-20-69 Marjo, Continental Oil Co.
10- 4-91 Transco-Knowlton, Texas Prod. Co. 3.
19- 6-68 Bank, Texas Prod. Co.
9- 9-101 Maire, Gypsy Oil Co.
16-21-65 Columbus Heights Oil Co.
19-17-67 John Fr., Red Creek Oil Co.
17-16-65 Wilson, Ohio Oil Co. 1.
30-10-68 Foster, Union Oil of Calif.
30- 8-68 Whitaker, Blunck Union of Calif.
36-10-69 State, Union of Calif.
24- 2-103 Rigby, Midwest Oil Co. 1.
21-20-69 SW, Continental Oil Co. 565.
21-20-69 SW, Continental Oil Co. 568.
4-21-69 Continental Oil Co. 569.
Fremont Co., Parkdale Oil & Gas.
10- 4-91 Knowlton, Texas Prod. Co. 4.
8- 3-91 Moebzel, Thornburg.
17-17-64 Christy Oil Co.
31-10-68 Buckeye, Union of California.
30- 8-68 Messerschmidt, Union of Calif.
30-10-68 Plummer, Union of California.
10- 4-91 Wick, Texas Prod. Co. 2.
Shut Down
32-20-63 Baxter, Salida Oil & Ref. 2.
8- 3-91 Miller, Shaffer Oil Co.
17- 8- 8 NW, Carter Oil Co.
36- 9-69 NE, Atlantic Pet. Co.
31- 2-96 NW, White River Dev. Co.
22-12-100 Wm. Morris et al.
33- 8-68 Chandler, Penn-Colorado Co.
30- 2-102 SE, Midwest Ref. Co.
8- 8-102 Smith, Sun Oil Co.
13- 8-68 Hoff, Centennial & Sunset.
28- 5-91 Freeman, Texas Prod. Co.
33- 5-91 Hamilton, Texas Prod. Co.
25-24-61 SW, Utah Southern Oil.
15-21-66 Union Oil of Colorado.
28-28-32 Associated Oil of Colorado.
28-27- Gerhrung, Sand Hill Oil Co.
32-31-61 Colorado Oil Co.
23- 6-69 Ruekvetter, Wellington Oil Co.
19- 5-69 Alps, Gateway Oil Co.
23- 9-69 Waverly, Consolidated Oil Fields.
32-10-68 SE, Imperial Oil Co.
25- 8-68 NE, American Pet. Corp.
6- 7-68 Lindemuth, Victory Oil Co.
18-20-46 Ne-No-Shee Oil Co.
13- 1-46 Yuma 2, Hessick Drilling Co.
19- 9-68 Harwood, Great Northern Oil Co.
11- 1-44 Hildrith, Hessick Drilling Co.
24- 9-69 Hanna, Wellington Oil Co.
6-17-68 NE, Bonner Oil Co.
17-17-64 NW, Peerless Oil Corp.
30- 4-68 NW, Panuco Explor. Co.
4-45-16 NW, Gilmore Oil Co.
21-20-69 Mojala Oil & Gas Co.
Rigs, 19; wells drilling, 99; total, 118.

UTAH
Rigs
18-23-21 Metropole Oil Co.
4-22-19 Crescent Dome Pet.
Wells Drilling
19-22-21 Utah Oil & Ref. Co.
23-44-95 Mountain States Pet. Co.
35-43-90 Utah Oil & Ref. Co. 2.
31-43-10 Utah Oil & Ref. Co. 3.
6-27-21 Shaffer, Midwest Ref. Co. 1.
Roselle District, Lakeside Oil Co.
16- 2- 5 State, Western Empire Oil 1.
32-42-17 Monroe Oil Co.
Diamond Fork, Gustaven Oil Co.
31-32-18 Union Oil of Utah.
27-14-19 Glockner, Utah Southern Oil.
4-18-28 New York State Oil Co.
23- 5-22 Utah Oil & Ref. Co.
7-21-19 SW, Standberg Pet. Co.
Grand County, Radatz Syndicate.
22- 3-24 Clay Basin, Prod. & Ref. 2.
35-21-16 Culbertson, Marland Oil Co.
Shut Down
6-14-13 San Juan Dev. Co.
23-42-17 Monumental Oil Co.
12-19-13 Utah Oil & Ref. Co.
17- 4- 6 Ute Pet. & Utah Southern.
13- 4 -9 Castle Dale Oil Co.
27-16- 4 Producers Oil Co.
Lakeside Dome, W. R. Holmes.
Diamond Fork, Franko Utah Oil.
25-12-13 Utah Central Oil Co.
34-25-21 NW, Big Six Oil Co.
4-23-10 SE, Crescent Eagle Oil Co.
Diamond Ford, Franko Utah Oil.
25-12-13 Utah Central Oil Co.
34-25-21 NW, Big Six Oil Co.
4-23-10 SE, Crescent Eagle Oil Co.
Rigs, 2; wells drilling, 32; total, 34.

NEW MEXICO
Rigs
19-26-34 SW, Sinclair & Fenton.
15-21-33 NW, Covert et al.
19-16-34 SW, Crescent Eagle Oil 1.
17-31- 8 Huntington Park Oil.
36-12- W. H. Graham.
Wells Drilling
11-18-28 S, Illinois Prod. Co. 1.
28-18-28 NE, Illinois Prod. Co. 31.
29-18-28 NE, Illinois Prod. Co. 53.
21-18-28 NE, Illinois Prod. Co. 1.
17-18-28 SW, Cummins 3.
21-18-28 SW, Cheesman et al.
4-18-28 SE, Pueblo Oil Co. 4.
28-18-28 SW, Twin Oil Co. 4.
23-28-15 NE, E. M. Treat & Co.
27-18-28 SE, Quillin & Dumont.
15-19-25 SE, Eppenhauser et al.
14-15-17 NW, Arkansas Fuel Co.
29-17-18 T. S. Hogan.
24-10-27 NW, Carl Dresser et al.
20- 4-28 NW, Oliver Well.
16- 1-27 Ft. Sumner Oil Co.
25-17-16 Graham et al.
5- 6- 7 Estancia Co.
19-16-34 W. A. Wyatt 1.
20-29-11 NE, West Coast Gaso. Co.
6- 4-20 Woods Eddeman.
7-16- 1 Kaseman, Abbu, Natural Gas Co.
11- 9-21 Arkansas Fuel Co.
30- 3- 9 NE, Arkansas Fuel Co.
4-21-27 Olson, M. M. Miller.
15-29-11 Bloomfield Oil & Gas 6.
15-12-23 Zeigenfield Co.
9-20-10 Lexi Oil Co.
15-23-24 California Co.
3-12-29 Bell, Marland Oil Co.
23-31-18 NW, Union Oil Co.
14-15-17 NE, Arkansas Fuel Co.
16- 8-27 NW, Colorado Gas & Fuel Co.
24- 8-23 SE, Lewis et al.
30- 4- 9 NE, Red Feather Oil Co. 1.
25-24- 1 Continental Oil Co. 2.
16-29-11 SE, C. S. Ringle.
34-29-11 C. S. Ringle.
18-17-28 SE, Bobb et al 3.
4-21-30 SW, Van Cleve & Kronen 2, 3.
17-18-28 SW, Texas Prod. Co. 2.
9-13-34 McGee, Olean Oil Co. 1.
24-10-27 NW, R. C. Christman 1.
23-18-11 Pan-Mex. Dumas 1.
24-31-15 W. R. Childers.
3-27-17 SW, Continental Oil Co. 3.
3-19-28 NW, Levers & Carper.
8- 2-14 Simmons et al.
10- 3-17 Transport Oil Co.
19-17-28 Thompson, George Bobb et al 4.
27-16-28 Braden Oil Co. 1, 2.
17-18-28 NW, E. G. Hurst.
17-18-28 State, Danciger O. & R. 3.
9-10-28 SW, Danciger Bros.
4-18-28 Daugherty, Ohio Oil Co. 2.
4-18-28 New State, Ohio Oil Co. 5, 6, 7.
5-18-28 New State, Ohio Oil Co. 2.
17-18-28 C. J. & W., Ohio Oil Co. 4.
1-20-27 McCullough, Ohio Oil Co. 1.
24-21-26 Tracy, Ohio Oil Co. 1.
16-18-28 Keiser, Ohio Oil Co. 1.
9-18-28 NW, Illinois Prod. Co. 35.
17-18-28 NE, Illinois Prod. Co. 37.
4-18-28 Bookan, Danciger O. & R. Co.
4-18-28 SE, Frontier Oil Co. 2.
4-21-30 SW, Snowden-McSweeney.
17-18-28 SW, V. K. & F. Oil Co. 6.
17-18-28 NW, Williams Oil Co. 3, 74.
3-18-28 SW, Levers & Carper 2.
9-18-28 NE, Sidler Drilling Co. 1.
33-17-30 SW, Wooley-Jones.
27-10-26 NE, New State Pet. Co.
23-14-26 NW, Shaffer Oil & Gas.
2- 6-25 NW, Spaulding Dome Syndicate.
14-15-10 Pierce et al.
1-17- 9 Welch et al.
13-31- 1 NW, San Juan Basin Syndicate.
31- 2 Williams et al.
32- 7-10 California Explor. Co.
21-17-32 NE, Maljamar O. & G. Co.
11-16-32 SE, New Mexico Prod. Co.
12-29-19 Continental Oil Co. 13.
15-29-11 Butler-Stonacher Syndicate.
7-13-10 NW, Wood et al.
10- 3-17 Transport Oil Co.
19-21-18 NE, F. A. Black Drilling Co.
22-10 Marine Oil Co. of Calif.
25-17-16 Patterson & Stumpi.
21-18-28 Flynn, Welch & Yates 31.
29-18-28 NW, Flynn, Welch & Yates 35.
11-18-28 Dunn, Flynn, Welch & Yates 2.
17-18-28 SW, Flynn, Welch & Yates 37.
15-15-29 Southern Exploration Co. 1.
Shut Down
Tract E, Rainbow Oil Co.
24-14-15 SW Meadow Oil Co.
8- 6- 1 DeChaves Pet. Co.
3-13-15 SW, Santa Fe Oil Co.
36-11-27 SW, Buffalo Roswell.
31- 3-15 NW, Wyo-Colo Oil Co.
22-18-27 State, Oscar Howard.
24-29-11 Hubbell & Hall.
21-30-11 Home Gas Co.
2-19-26 Pechenbaugh, Eureka Oil Co.
1- 2-32 NE, Gurley Oil Co.
24-21-11 SE, Angelus Mining Association.
21-14-15 SE, Blackstone Champion.
30-13-10 SW, Wood et al.
6-29- 9 Detroit Oil Corp.
10-29-24 NW, Eureka Oil Co.
19-20-30 NE, W. C. Wells & Son.
29-29-11 Montesuma Syndicate.
27-10-24 E. A. Rose.
27-11-24 J. D. Ward.
14-16-32 Cass-Elliott.
18-25-35 Holmes & Huey.
12-29-13 SW, Shiprock Oil Co.
9-30- 9 Rainbow Oil Co.
36-20-30 Yates, Keyes et al.
11-16-27 SE, Keyes et al.
16-18-28 NW, Compton Bros.
18-22-27 SE, Blue Bird Oil Co.
3-22-26 NE, Blue Bird Oil Co. 2.
16-18- 9 Melstead 2.
8-22- 1 Black, Albuquerque.
25-39-12 NE, Hall et al.
6-29- 9 NE, Detroit et al.
25-11-26 SW, N. Jones.
25-13-31 SE, Standard Pet. Co.
11-20-29 Rawson, William Dooley.
30-14- 9 SE, Union United Oil Co.
23-17-29 New Mexico Oil Co. 1.

26-18-18 New Mexico Oil Co. 2.
25- 7- 2 Swisher & Wallace.
16-15-29 NE, Inspiration Oil Co.
31-19-28 Pruitt, Ohio Oil Co. 1.
1-20-28 Ryan, Ohio Oil Co. 1.
21-17-28 Johnson, Ohio Oil Co. 1.
30-23-11 New Mex., Millwaukee Syndicate.
22-19-27 NW, Valley Oil Corp.
8-16-27 SE, Colorado Drilling Co.
Rigs, 5; wells drilling, 140; total, 145.

WELLS COMPLETED

WYOMING

2-33-76 Continental Oil Co. 29..... 20
33-40-79 SW, Wyo. Asso. 33-L.....1580
33-40-79 SW, Wyo. Asso. 34-L.....2000
33-40-79 SE, Wyo. Asso. 19-L..... 500
30-40-78 NW, Wyo. Asso. 33-A..... 45
24-40-79 NW, Wyo. Asso. 18-A..... 30
30-40-78 NW, Wyo. Asso. 21-A..... 50
24-40-79 NE, Wyo. Asso. 14-A..... 40
23-40-79 NE, Wyo. Asso. 1..... 40
34-40-79 SE, Salt Creek 13-L.....2210
11-39-79 NW, Salt Creek 33-A..... 35
12-40-79 SE, Mt. & Gulf 4-A..... 40
35-40-79 SW, Midwest Oil Co. 4-L.... 60
34-40-79 NE, Midwest Oil Co. 1-A.... 45
14-40-79 NW, Midwest Oil Co. 13-A.. 35
20-39-78 SW, Argo Oil Co. 8..... 30
5-39-78 NW, Argo Oil Co. 23-A..... 40
20-39-78 NW, Argo Oil Co. T-3..... 40
2-39-79 SW, Cont. Prod. Co. 6-A..... 45
32-40-78 SW, Cont. Prod. Co. 30-A..... 45
32-40-78 NW, Cont. Prod. Co. 6-AX... 70
26-40-79 NW, Wyo. Asso. 36-L..... 105
35-40-79 SE, Wyo. Asso. 27..... 550
34-40-79 NE, Midwest Oil Co. 4-A..... 45
11-40-79 SE, Midwest Oil Co. 34-AS.. 40
1-39-79 NW, Midwest Oil Co. 3-AS.. 35
27-40-79 SE, Midwest Oil Co. 14-A... 35
23-40-79 SE, Wyo. Oil Fields 25..... 50
19-40-78 SE, Wyo. Oil Felds 33-A..... 50
34-40-79 SE, Salt Creek Cons. 24-L...1950
30-40-78 NW, Utah O. & R. Co. 22-A.. 50
35-40-79 SE, Wyo. Asso. 23..... 60
35-40-79 SW, Midwest Oil Co. 18-L... 231
32-40-78 Schuster Bros. 18-A..... 150
14-40-79 SW, Wyo. Asso. 28-A..... 40
15-40-79 NE, Wyo. Asso. 2-A..... 40
26-40-79 NW, Wyo. Asso. 16-A..... 65
26-40-79 NE, Wyo. Oil Fields 24-L... 75
25-40-79 SW, Wyo. Oil Fields 2..... 75
5-39-78 NW, Argo Oil Co. 29-A..... 50
19-40-78 Tract V, Texas Prod. 6-A.... 50
35-36-65 Leo, Ohio Oil Co. 3..... 1425
3-35-65 Belle Cattle, Mutual O'l Co. 7 dry
11-26-90 Prairie O. & G. Co. 59..... 700
34-26-88 Prairie Oil & Gas 2-C..... gas
14-25-89 Sherard, Ohio Oil Co..... dry
12-19-87 Marland Oil Co..... dry
19-18-77 U. P., Ohio Oil Co..... dry
27-31-17 Enos, Argo Oil Co. 8..... 10
10-40-80 Marland Oil Co..... dry
31-40-80 SW. Sonset Syndicate..... dry
23-33-79 Casper O. & G. Syndicate.... dry
16-48-82 Belt, Carter Oil Co..... dry
8-48-82 Griner, Carter Oil Co..... dry

Wells completed 54
Production 12,881
Dry 9
Gas 1
Gas production 15,000,000

MONTANA

WELLS COMPLETED

16-35- 2 State, Cont. Oil Co. 6..... dry
26-35- 2 Able, California Oil Co. 5.... dry
34-35- 2 Lashbaugh, Ferdig-Hughes 7. 20
31-35- 1 Byrne, Rose Oil Co. 11..... 20
22-35- 2 Lorenson, Louis Hill 6..... 25
22-25- 2 Lorenson, Louis Hill 7..... drv
21-35- 2 McManus, Louis Hill 2..... 15
30-35- 1 Stannard, Batchellor Oil Co. 2 dry
13-35- 2 Watt, American Prod. Co. 3.. dry
5-34- 2 Moore, Hub City Oil Co. 1.... dry
22-35- 3 Storme, Maharg ..... dry
30-35- 1 Stannard, Securities Pet. Co. 7 10
30-35- 1 Stannard, Rice Oil Co. 4.... 200
31-35- 1 Byrne, Rose Oil Co. 12.....1500
30-35- 1 Stannard, Batchellor Oil Co. 2 drv
32-35- 1 Caine, 56 Pet. Co. 8..... 25
34-35- 1 Lashbaugh, Fertig et al 8.... dry
2-34- 2 Steele, Big West Oil Co. 3... 20
27-35- 3 Rock, Colonel Kevin Oil 2..... 20
31-35- 1 Byrne, Fulton Oil Co. 6..... 100
32-35- 1 Byrne, Kewanee Oil Co. 6.... 50
4-34- 2 Norum, Glenrock Oil Co. 4... dry
30-35- 1 Maughan, Ohio Oil Co. 6.... dry
35-35- 2 Norum, Ohio Oil Co. 9..... dry
2-15-28 Ryan, Standard of Calif..... dry
10-15-29 Center, Mid-Northern Oil 22.. 66
26- 1-21 Hepp, Barnsdale Foster 100
22- 2-25 SE, Lake Basin Oil Co..... dry
25-11-24 SW, Lincoln Oil Co. 1..... 10
7-16-22 NE, N. E. Gascho ..... dry

Wells completed 30
Production 2331
Dry 14

COLORADO

WELLS COMPLETED

30- 2-102 Emerald, Texas Prod. Co.... gas
23-20-69 Continental Oil Co..... dry
5-19-68 Penrose, Cont. Oil Co..... dry
7- 9-68 Dumont Cook, Union Oil Co..2000

Wells completed 4
Production 2000
Dry 2
Gas 1
Gas production 60,000,000

UTAH

WELLS COMPLETED

6-27-21 Midwest & Utah Southern.. 400

NEW MEXICO

4-18-28 New State, Ohio Oil Co. 4.. 80
28-18-28 Toomey, Ohio Oil Co. 5.... 130
28-18-28 NE, Illinois Prod. Co. 27.... 100
28-18-28 NE, Illinois Prod. Co. 32.... 125
21-18-28 NE, Illinois Prod. Co. 1..... 85
19-18-28 NE, Kaskadden Barnett 80
18-18-28 SE, Kersey & Conrad..... 75
8-20-28 Reiff, California Co. 2..... dry
28-18-28 NW, Maljamar Oil Co. 12.... 200
28-18-28 NW, Maljamar Oil Co. 13.... 150
17-18-28 SW, Danciger O. & R. 2.... 100
4-18-28 State, Danciger O. & R. 4.... 75
4-18-28 State, Danciger O. & R. 1.... 75
17-18-28 Cummings, Danciger O. & R. 3 100
17-18-28 Williams Oil Co. 2..... 75
2- 3- 8 NW, L. H. Mitchell & Sons.. dry
31-32-13 Four States Oil Co..... dry
35-30-19 Continental Oil Co. 11..... 85
12-29-19 Continental Oil Co. 12..... 130
32-25-19 Navajo Pet. Co..... dry
29-30- 9 Huntington Park Oil..... 40
4-18-28 Pueblo Oil Co. 2..... 75
4-18-28 Pueblo Oil Co. 3..... 125
4-18-28 Frontier Oil Co. 1..... 150
28-18-28 Flynn, Welch & Yates 33.... 300
29-18-28 Flynn, Welch & Yates 34.... 100
5-18-28 Texas Prod. Co. 4..... 75
28-18-28 Toomey, Ohio Oil Co. 6..... 50

Wells completed 28
Production 2350
Dry 4

EASTERN FIELDS

Summary of Wells Completed

Fields—	Comp.	Prod.	Dry	Gas
Allegany	25	40	0	0
Bradford	84	204	1	0
Middle Field	5	5	0	0
Venango-Clarion	26	27	0	4
Butler-Armstrong	12	32	2	3
Southwest Pennsylvania	26	68	5	12
West Virginia	108	515	16	64
Southeast Ohio	80	1,545	13	12
Total Dec.	363	2,426	37	85
Total Nov.	384	1,471	62	84
Difference	21	955	25	1

Summary of Work Under Way

Fields—	Rigs	Drg.	Ttl.
Allegany	15	13	28
Bradford	18	69	87
Middle Field	0	7	7
Venango-Clarion	2	15	17
Butler-Armstrong	4	10	14
Southwest Pennsylvania	8	30	38
West Virginia	44	174	218
Southeast Ohio	22	116	138
Total Dec. 31	113	434	547
Total Nov. 30	138	469	607
Difference	25	35	60

WELLS COMPLETED

Allegany Field

Clark, L. E. Norton et al 1
Barney & Groves, Atwood & Stebbins.. 1
Fee, Empire Gas & Fuel, Ltd. 2
Fee, Empire, Ltd., et al 5
Fee, Empire Gas & Fuel, Ltd. 1
Fee, State Bank of Bolivar 28, 29. . . . wtr
Fee, Bert Maitland and Citizens national Bank, Wys. 61 1
Fee, C. L. Norton et al 1
Fee, Phillips & Howard 3
Fee, O. C. Brennan et al 1
Fee, Gilligan & McDermitt 5
Fee, Gilligan & McDermitt 5
McDermott, Wilbart Oil 2
Coast et al, M. J. Crowley et al. 2
Fee, J. M. Hughes et al 1
Beever, P. H. Dougherty et al. . . . . wtr
Fee, Wm. Bartoo et al 1
Fee, Martin Bros. & Wasson 2
Fee, F. W. Forness, Jr. 1
Perkins, W. H. Lobaugh, trustee 2
Fee, State Bank of Bolivar et al 1
Cass, F. J. Wilson 2

Wells completed 22
Production 40
Water 2

Bradford Field

Middaugh, A. L. & L. M. Lilly 8
Borden, T. B. Wilson 3
Norton, Kahle Oil 2
Keller, Wm. Hifler Est. 3
Marvin, Porter & Devore 3
Knapp, T. H. Kervin, Jr. 3
D. C. & B. T. H. Kervin, Jr. 3
Gelpin, Simpson et al 3
Gelpin, T. P. Thompson 2
Borden, C. E. Piper 2
Baldwin, C. B. Kervin 3
Loop, C. B. Kervin 1
Burns, A. E. Yahn 2
Burns, A. E. Yahn 1
Fee, C. W. Wasson 1
Sprague, S. J. Sprague 2
Baldwin, Forest Oil 8
Hanes, Coast & Storms . . . . . dry
Bingham, J. L. Yerdon 3
Elder, S. H. Elder & Co. 4
Bingham, Paul Evans et al 3
Wright, G. McCool et al 2
Sill, Hope Oil Co. 2
Hodge, South Penn Oil 2
Hodge, South Penn Oil 2
Bingham, H. B. Oil 1
Pratt, Petroleum Reclamation 2
Pratt, Petroleum Reclamation 1
Pratt, Petroleum Reclamation 2
Ekas, R. C. Lloyd 2
Ekas, R. C. Lloyd 3
Lovell, Ostrander et al 1
Whipple, South Penn Oil 2
Whipple, South Penn Oil 3
Jack, J. & H. M. Jack 2
Bingham, W. S. Jones & Son 3
Fee, G. A. Simpson 2
Garlock, Denwood Oil 2
Bingham, H. B. & L. C. Brink 1
Fee, F. S. Roquin 2
Fee, Forest Oil 1
Hater, J. F. Magee 1
Nesselson, Nesselson Bros. 4
Lawton, Suhr, McSweeney Co. 90 1
Bing, 432, J. A. Hooper 1 . . . . . wtr
Bing, 389, D. W. Daly 41 2
Bing, 540, Park & Bovaird 33 1
Bing, 490, T. H. Kennedy No. 2, 136... 1
Riddell estate, South Penn Oil 49 1
Starkwater, May C. Williams 7 1
Rounds & Lawrence, South Penn Oil 49. 10
Fee, Curtis & Dunleavey Bros. 19... 2
Fee, A. W. McCandless & Sons 8 5
Fee, W. E. Williams 1 4
Fee, R. O. Lander et al 16 2
Fee, E. Jack et al 22 2
Bing, O. T. Andrus et al 15 2
Fee, L. L. Dana 17 2
Franchott, F. M. Johnston & Son 21... 2
Fee, Howard Wile 12 2
Fee, Hooker estate 5 2
Fee, E. E. & V. Schermerhorn 21 2
Fee, Dana & Dana 28 5
Leasure, South Penn Oil 5
Drake, Mrs. Joseph T. Jones 4
Fee, Mrs. Joseph T. Jones 3
Fee, South Penn Oil 1
Fee, South Penn Oil 1
Bing, Hazlewood Oil 37 2
Bing, Hazlewood Oil 111 3
Fee, W. C. Kennedy Co. 52 2
Bing, Associated Pro. 159 3
Fee, Roy E. Diament 13 2
Ring, 129, Kennedy Co. No. 4, 57..... 1
Fee, Hazelwood Oil 69 1
Fee, J. W. Bouton 1
Bing, 408, South Penn Oil 13 4
Bing, 482, South Penn Oil 20 . . . . . sand
Bing, 481, South Penn Oil 21 5
Bing, 370, Hazelwood Oil 14 5
Bing, 590, Associated Producers 362.... 2
Bing, 568, Associated Producers 363... 5
Bing, 494, South Penn Oil 44 6
Bing, 501, South Penn Oil 15 2

Wells completed 84
Production 204
Dry 1
Water and sand 2

Middle Field

Knopf, N. Knopf 1
Irvine, D. Wade 1
Irvine, D. Wade 1
Lot 3767, F. J. Moser 28 1
Lot 426, Kane Oil 1

Wells completed 5
Production 5

Venango-Clarion

Osmer, Rice & Thompson 1 1
Osmer, Rice & Thompson 2 1
Jones, Lester, Hogan et al 25 1
Jones, Lester, Hogan et al 26 4
Boals, L. J., E. J. & C. D. Boals 33 . . . 1
Foster & Sutton, Hunter & Franklin Trust 13 1
Riddle, L. E. Riddle & Co. 1 1
Edinger, Hovis, Porter et al 4..... 1
Hodges, S. Y. Ramage 43 1
Fisher, Hepler, Renfro et al 28 1
Farringer, Citizens Banking Co. 7..... 1
Rice, Jacob Sheasley 1 1
Rice, Jacob Sheasley 2 1
Rice, Jacob Sheasley 3 1
Rice, Jacob Sheasley 4 1
Nicklin, S. Y. Ramage 64 1
McCalmont et al, C. & L. Roess Trust Est. 21 1
Flinchbaugh, C. G., Ed & Henry Flinspach 3 1
Stewart & Cotton, C. G., Ed & Henry Flinspach 3 2
Clarion—
Reichner, Alum Rock Gas 6 . . . . . gas
Reichner, Alum Rock Gas 5 2
Gatesman, Fefren, Eisworth Co. 1..... gas
Best, Wenting Kribbs et al 2 1
Carl heirs, Alum Rock Gas 2 1
Rowe, Fry, Carroll & Hugus 3 . . . . . gas
Tingley, Roundtown Gas 1 . . . . . gas

Wells completed 26
Production 27
Gas 4

Butler-Armstrong

Griffith, E. C. Griffith 1
Simons, Harvey Snow 3
Thompson, Sherin, Burns et al 1..... 10
Rosenberry, Kreiff & Co. 1 . . . . . gas
Gahagan, Saxonburg L. & H. 1 5
Byers, Byers & Son 7 1
McCollough, McCollough Gas 2 2
Shaner, South Penn Oil 16 1
Harger, George Harger et al 1 . . . . . dry
Rowan, P. Cradel et al 2 . . . . . dry
McNally, American Nat. Gas 1 . . . . . gas
Frainheim, Wm. Sammis et al 1..... gas

Wells completed 12
Production 22
Dry 2
Gas 3

ALLEGANY FIELD

Rigs

Fanton, E. M. Ketchner.
Fee, Empire Gas & Fuel, Ltd.
Fee, Empire Gas & Fuel, Ltd.
Fee, Bert Maitland and Citizens Nat. Bank.
Fee, Bank of Wys. 61.
Fee, Empire Gas & Fuel, Ltd.
Fee, E. L. Williams.
Fee, C. D. Henline et al.
Fee, C. C. Brennan et al.
McDermott, Willbart Oil.
Fee, Homestead Oil.
Coast et al, M. J. Crowley et al.
Fee, Gilligan & McDermitt.
Fee, McDonnell heirs.
Fee, C. L. Childs et al.
Fee, Empire Gas & Fuel, Ltd.
Fee, Empire, Ltd., et al.
Fee, C. O. & W. O. Taylor.
Fee, The Albert Oil.
Reid, agent, Citizens Nat. Bank Wys. 62.
Fee, State Bank of Bolivar 28, 29.
Fee, Phillips & Howard.
Fee, Citizens National Bank 62.
Fee, M. J. Crowley et al.
Fee, Sadie Sawyer.
Fee, Alfonso Wilson.
Fee, Whitford et al.
Fee, Dunning & Dunning.
Rigs, 15; wells drilling, 13; total, 28.

BRADFORD FIELD

Wells Drilling

Rigs

Moore, Moore & Moody 10.
Ring, 490, T. H. Kennedy No. 2 137.
Winsor, Wilson et al 12.
Riddell Estate, South Penn Oil 50.
Fee, L. G. Dana 18.
Fee, South Penn Oil.
Bing, Hazelwood Oil 115.
Bing, Hazelwood Oil 39.
Fee, Mrs. S. F. & George Kaber 36.
Fee, South Penn Oil 32.
Associated Producer, Holding Oil Corp. 21.
Bing, 408, South Penn Oil 14.
Bing, 370, Hazelwood Oil 14.
Bing, 481, South Penn Oil 481.
Bing, 568, Associated Producers 368.
Bing, 499, South Penn Oil 45.
Bing, 494, South Penn Oil 46.
Bing, 533, South Penn Oil 79.

Wells Drilling

Bing, 540, Park & Bovaird 33.
Bing, 423, C. W. Henretta et al 21.
Bing, 500, Daly & Healy 25.
Bing, 432, J. A. Hooper 2.
Bing, 381, Wilson & Fitzgibbon 70.
Bing, 374, Wright & Burdick 4.
Redfield, South Penn Oil 102.
Ault, Dunsmore & Co. 2.
Burns et al, Bliss Oil 29.
Fee, Ida Slike & W. W. Slike 6.
Fee, T. H. Givans 11.
Fee, E. Jack et al 23.
Dennis, E. O. Potter 4.
Franchott, J. G. & Harry Shannon 12.
Fee, J. A. Walters estate 37.
Fee, L. G. Dana.
Fee, South Penn Oil.
Drake, Mrs. Joseph T. Jones.
Fee, Mrs. Joseph T. Jones.
Bing, Hazelwood Oil 114.
Bing, South Penn Oil 38.
Fee, Hillard & Dodge 18.
Fee, Associated Producers 206.
Fee, Roy E. Diament 12.
Fee, Hilltop Oil 35.
Bing, 418, Grant & Mohan 8.
Bing, 370, Hazelwood Oil 16.
Bing, 440, South Penn Oil 35.
Bing, 554, South Penn Oil 46.
Bing, 430, South Penn Oil 89.
Bing, 591, Associated Producers 365.
Bing, 430, South Penn Oil 92.
Bing, 570, South Penn Oil 108.
Walbaugh, A. L. & L. M. Lilly.
Horton, T. B. Wilson.
Borden, W. B. Miller.
Hanes, Coast & Storms.
Martin, Potter & Devore.
Gelpin, T. B. Thompson.
Baldwin, C. B. Kervin.
Burns, A. E. Yahn.
Sprague, S. J. Sprague.
Burns, Burns Bros.
Baldwin, Forest Oil.
Kervin, Minnich & Hifler.
Bingham, J. L. Yerdon.
Bingham, Paul Evans et al.
Sill Hope Oil.
Richardson, Hope Oil.
Hodge, South Penn Oil (two wells.
Bingham, H. B. Oil.
Pratt, Petroleum Reclamation (three wells.)
Ekas, R. C. Lloyd (two wells.)
Whipple, South Penn Oil (two wells).
Bingham, W. S. Jones & Son.
Garlock, Denwood Oil.
Rew, Wolfe, Leech & Co.
Monroe, Devore et al.
Corwin, C. H. Corwin.
Taylor, M. E. Jones.
Boyd, Whitehead & Carson.
Fee, Webb Est.
Willett, I. Willett heirs.
Rigs, 18; wells drilling, 69; total, 87.

MIDDLE FIELD

Wells Drilling

Irvine, D. Wade.
Osgood, Rembold & Co. 11.
Ulf Bros., Fidelity Petroleum 1.
T. & W., A. E. & W. C. Tompsett 78.
Irvine, Hague & Co. 43.
Sheffield, J. C. Cochran 49.
Lot 304, Citizens Gas 2.
Wells drilling, 7.

VENANGO-CLARION

Rigs

Clairion—
McCauley, Alum Rock Gas 1.
Baynham, Baynham & Edinger 10.

Wells Drilling

Plumer, Eakin & Hutchinson 44.
Edinger, Hovis, Porter et al 5.
Hughes, A. W. Hughes 21.
Cross, H. J. Hoffman 16.
McCalmont 225 acres, S. P. McCalmont Est. 49.
Blair, Reeves & Franklin Trust 45.
Clarion—
Kenemuth, H. M. Kenemuth 1.
Cohlheep, S. R. Lewis 2.
O'Neill Bros., Alum Rock Gas 5.
Jordan, Conver & Morgan 1.
Terwilliger, Lintz & Beary Oil & Gas 1.
Feichner, Alum Rock Gas 7.
McKissick, W. T. McKissick 6.
Knappenberger, Knappenberger, Thomas et al 1.
Wilson, W. W. Wilson.
Rigs, 2; wells drilling, 15; total, 17.

BUTLER-ARMSTRONG

Rigs

Shaner & Beilstein, Shaner & Co. 3.
Swartzlander, H. L. Swartzlander 1.
Purdum, Harmonite Oil 1.
Boggs heirs, R. C. & W. V. Binkerd.

Wells Drilling

Donnelly, Bear Creek Oil.
Bell, Vogt & Turner.
Clark, Chas. Rumbaugh 1.
Delaney, Delaney Bros. 1.
Dewey estate, Dewey Trust 1.
Ball, T. W. Phillips Gas & Oil 1.
Rankin, Benton, Rankin & Co. 1.
Hockenberry, Ingold & Ruby 2.
Goehring, McClay Bros. 2.
Goehring, Wm. Pfeifer et al 4.
Rigs, 4; wells drilling, 10; total, 14.

WEST VIRGINIA

WELLS COMPLETED

LEWIS COUNTY

Bennett, Phila. Gas Co. 1..... gas
Rollyson, Hope Gas Co. 1..... dry
Whalen, Whalen & Co. 1..... dry

HARRISON COUNTY

Nutter, South P. O. Co. 2..... gas
Hamrick, Reserve Gas Co. 1..... gas

MARION COUNTY

Cunningham, Owens B. & M. Co. 2.... gas

MONONGALIA COUNTY

Tennant, So. P. O. Co. 3..... gas
Brewer, So. P. O. Co. 2..... gas
Varner heirs, Dunmar O. & G. Co. 9.. gas
White, Mfrs. L. & H. Co. 3..... gas
Wise heirs, Chester Dev. Co. 1..... gas

WETZEL AND TYLER COUNTIES

Riter, Hope C. & R. Co. 2..... 8
Springer, Carnegie Gas Co. 1..... gas
Morris, So. P. O. Co. 6..... gas
Russell, Carter Oil Co. 39..... 2
Henderson, Mfrs. L. & H. Co. 1..... gas
Martin, Carter Oil Co. 1..... dry
Hissam, Reno Oil Co. 5..... 2
Galloway, McCullough & Co. 2..... dry
Riter, Mfrs. L. & H. Co. 1..... gas
Miller, Carnegie Gas Co. 1..... gas
Williams' heirs, Shrader Oil Co. 1..... 6

MARSHALL COUNTY

Keller, Mfrs. L. & H. Co. 6..... 100
Markey, Shadyside O. & G. Co. 1..... dry
Riley heirs Lease 2, Waamuth & Kallahan O. Co. 1..... gas
Howard heirs, Mfrs. L. & H. Co. 3.... 5
Blake & Co. Mfrs. L. & H. Co. 2..... 8
Stern, Hope Gas Co. 1..... gas

HANCOCK COUNTY

Baumont Land Co., Ward & Co. 1.... dry

DODDRIDGE COUNTY

Leeson, Carter Oil Co. 2..... 4
Williams, Hope C. & R. Co. 7..... 15
Dotson, Vincent Oil Co. 1..... dry
Williams & Co., Nay & Kintzer 1..... dry
Maxwell, Phila. Oil Co. 4..... dry
Mausby, Hope C. & R. Co. 1..... gas
Coulehan, Eastern Oil Co. 5..... gas
Heflin & Co., Mfrs. L. & H. Co. 2.... 10
Knight heirs, L. L. Shinn 1..... 8
Snider, G. B. Travis 1..... dry

RITCHIE COUNTY

Fleming, Carnegie Gas Co. 3..... dry
Summers, Carnegie Gas Co. 1..... dry
Campbell, Pgh. & W. Va. Gas Co. 2.. dry

Simmons, Stephens Drilling Co. 1..... gas
Garrett, Mudlick O. & G. Co. 1..... gas
Bee, Hope C. & R. Co. 1..... gas
W. Va. Tract, Cold Test Oil Co. 15.... 2
Snider, Gibbons & Co. 1..... 2
Atkinson, So. P. O. Co. 1..... 50
McGinnis, H. P. McGinnis 1..... 7
Adams, Raew Bros. 1 75
Kennedy heirs, Powell heirs 1..... gas
Hartman, Hope C. & R. Co. 1..... dry
Lowther, So. P. O. Co. 5..... 25

GILMER COUNTY
Gainer, Star Prod. Co. 2..... gas

WIRT COUNTY
Cairo tract, Cairo Oil Co. 2 ..... gas
Vandevender, W. P. Patterson 15..... 1
Rathbone Oil Tract, Roberts Bros. 144 dry
Waite tract, Wolf & O'Brien 29..... 2

BRAXTON COUNTY
Chensworth, W. Va. C. Gas Co. 1..... dry

WOOD COUNTY
Walker, So. P. O. Co. 11..... 6
Ewings' heirs, Jonas & Park 1 1

PLEASANTS COUNTY
Wagner, Bottom Oil Co. 5..... 12
Gale heirs, Samuels & Gale 10..... 4
Hammett heirs, Morgan & Co. 9..... 1
Holdren, Holdren Farm O. Co. 1.... dry
Ross Estate, Aetna O. & G. Co. 12.... gas
Gorrell heirs, Jeanette O. & G. Co. 4.. 6
Pratt, Marple & Co. 1..... 2

ROANE COUNTY
Fields, Grass Creek O. & G. Co. 1.... gas
McDade, Carter Oil Co. 1..... gas
Davis, Heck Oil Co. 6..... 5

CALHOUN COUNTY
Pettit, Thos. Crawley 1..... gas
McEndree, Hope C. & R. Co. 1..... gas
Beall, Hope C. & R. Co. 1..... gas
Scott, G. L. Cabot 1..... gas
Jarrett, So. P. O. Co. 1..... 2
I. O. O. F. lot, W. H. Bickle 1..... gas
Simmers, White Pine O. & G. Co. 1.... gas

CLAY COUNTY
Caston 260 acres, Virginian G. & O. Co. 7 45
Caston 260 acres, Virginian G. & O. Co. 8 20
Samples, U. F. G. Co. 1..... gas
Stockly, So. P. O. Co. 2..... 25
Stockly, So. P. O. Co. 5..... 20
Casto 220 acre, O. F. O. Co. 4..... 30
Casto 220 acres, O. F. O. Co. 5..... 25

LINCOLN COUNTY
Adkins, L. R. Sweetland 2..... gas
Hicks, Maul Rock O. & G. Co. 1..... gas
Cadwell, C. C. Wolf 1..... gas
Wheeler, W. C. Kingery Gas Co. 1.... gas
Williams, C. & D. Gas Co. 1..... gas
Reynolds, Col. G. & E. Co. 1..... gas

KANAWHA COUNTY
Duvall, Superior Oil Co. 4..... gas
Canterberry, U. F. G. Co. 1..... 1
Robertson-Taylor, U. F. G. Co. 1..... gas
Halstead, U. F. G. Co. 1..... gas
Grubb, U. F. G. Co. 1..... gas
Jennings, U. F. G. Co. 1..... gas
Dodd & Co., So. P. O. Co. 1..... gas
Fogarty, Poca Fork O. & G. Co. 5..... gas
Jarrett, Col. Carbon Co. 2..... gas

BOONE COUNTY
L. R. & P. tract B., Pure Oil Co. 17.. 1
White, G. L. Cabot 1..... gas

MINGO COUNTY
Neighbert heirs, Public Gas Corp. 2.... 7

LOGAN COUNTY
Yawkey-Freeman, Wacatoc O. & G. Co. 1 gas

PUTNAM COUNTY
Paul, C. & D. N. G. Co. 3..... gas

CABELL COUNTY
Davidson, Aetna O. & G. Co. 1..... gas
Hackworth heirs, Monickel Gas Co. 1.. gas
Keyser, Commercial Gas Co. 1..... gas

Wells completed	108
Production	515
Dry	16
Gas	54

LEWIS COUNTY
Rigs
Whalen, Smith & Co. 1.
Wells Drilling
Hooper, Donmore Oil Co. 1.
Cole, Coburn & G. Co. 2.

HARRISON COUNTY
Rigs
West, Standard Gas Co. 1.
Reed, Reserve Gas Co. 1.
Wells Drilling
Ferris, E. S. Monroe 4.
Lowndes, Patterson Gork O. Co. 16.
Turner, Furno Oil Co. 6.
Myers, So. P. O. Co. 4.
Smith, Reserve Gas Co. 1.
Tittroe, S. L. Horner 1.
Carter, Reserve Gas Co. 1.
Burnsider, Hope Gas Co. 1.

MARION COUNTY
Wells Drilling
Moore, Carnegie Gas Co. 1.
Thorn, Owens B. & M. Co. 1.
Wise, Owens B. & M. Co. 1.
Fleming heirs, Morgantown Oil Co. 1.

MONONGALIA COUNTY
Wells Drilling
Tennant, Dunmar O. & G. Co. 1.
Moore, Moore-Tez Oil Co. 1.
Shuman, Carnegie Gas Co. 1.

WETZEL AND TYLER COUNTIES
Rigs
Antill, John Gas Co.
Little & Co., John Gas Co. 3.
Stewart, Hope Gas Co. 1.
Eddy, McIntyre Oil Co. 1.
Yester, Hope Gas Co. 1.
McGinnis, H. L. Lambert 8.
Clark, Mfrs. L. & H. Co. 3.
White, Mfrs. L. & H. Co. 1.
Wells Drilling
Fox, Mfrs. L. & H. Co. 1.
Riter, Hope C. & R. Co. 5.
Matheny, Hope C. & R. Co. 1.
Spender heirs, American O. D. Co. 1.
Mason, Wiser Oil Co. 1.
Bates, Trainer Bros. & Ash 1.
Riggenbach, Silver Hill O. Co. 1.
Christie heirs, Hays & Co. 1.
Hostetter, Mfrs. L. & H. Co. 1.
Gover heirs, Clovis & Co. 1.
Main, Phillips & Main 1.
Henderson, Alfred Neely 1.
Thorn, Morgan Bros. 1.
Hays, Knowlton & Co. 1.
Lemasters, Mfrs. L. & H. Co. 1.
Riter, Mfrs. L. & H. Co. 1.
Long, Hope C. & R. Co. 2.
Long, Myers O. & G. Co. 1.
Smith, Boundy Bros. 1.

MARSHALL COUNTY
Rigs
Conway, Mfrs. L. & H. Co. 2.
McCuskey, Mfrs. L. & H. Co. 1.
Moner, Decem Dev. Co. 5.
McConaughey, Mfrs. L. & H. Co. 3.
Quigley, Mfrs. L. & H. Co. 1.
Wells Drilling
Calvert, Mfrs. L. & H. Co. 2.
Meighen, Mfrs. L. & H. Co. 1.
Conway, Carnegie Gas Co. 3.
McVuskey heirs, Waynesburg Gas Co. 1.
Shaffer, Decem. Dev. Co. 1.
Fair, Mfrs. L. & H. Co. 1.
Cole, Carnegie Gas Co. 2.

DODDRIDGE COUNTY
Rigs
Williams, Nay & Kintzer 3.
Maxwell, Mfrs. L. & H. Co. 1.
Rollins, Murphy Oil Co. 4.
Underwood, Keystone Oil Co. 1.
Wells Drilling
Maxwell, Columbian Carbon Co. 57.
Kelly, Raccoon O. & G. Co. 1.
Shrader, Keystone Oil Co. 1.

RITCHIE COUNTY
Rigs
Goff heirs, F. J. Davis 1.
Thomas, Pgh. & W. Va. G. Co. 1.
Kelly, Carnegie Gas Co. 2.
Donnely, E. E. Pope 1.
W. Va. Tract, Whitwood Oil Co. 29.
Mason, P. H. McDonough 1.
Deavaugh, Unknown 1.
Pope, E. E. Pope 2.
Metz, John Starvher & Co. 1.
Wells Drilling
Davidson, Carnegie Gas Co. 1.
Goff, Carnegie Gas Co. 3.
Williams, Heckert & Co. 1.
Mitchell, Brickerstaff & Co. 1.
Bush, Hope Gas Co. 1.
Vernon, Pgh. & W. Va. G. Co. 1.
Zinn, Pgh. & W. Va. G. Co. 1.
Jett, Hope C. & R. Co. 1.
Flanaghan, Carter Oil Co. 18.
Riggs, Carnegie Gas Co. 1.
McCosh heirs, Wilson & Co. 1.
Dye, Hope C. & R. Co. 2.
W. Va. Tract, Williams & Co. 30.
Kearns, Little & Co. 1.
Reason, Recktor Bros. 3.
Howell, Moore & Co. 1.
Jonas, Coss O. & G. Co. 3.
Hennan-Strawsburg, Astron Oil Co. 1.
Heck heirs, Darby & Co. 1.
Kelly heirs, Swingle Oil Co. 1.
Garrison heirs, Griffin Pro. Co. 1.
Jamison, So. P. O. Co. 1.
Barlow, N. Heinseiman 1.
Scott, Rinhart & Co. 1.
Maxwell, Lucky Day O. Co. 1.
Mosser, Kelly & Co. 1.
Flesher, Davis & Co. 1.
Mose, American Dev. Co. 1.
Conway, Mellon Bros. 4.
Shuman, Big 4 Drilling Co. 1.
Newburgh, Adams Oil Co. 6.

GILMER COUNTY
Rigs
Tierney, Jas. Tierney 3.
Simmons, Hope C. & R. Co. 1, 2.
Jones, Hope C. & R. Co. 1.
Wells Drilling
Hardman, Zinn & Co. 1.
Bennett, Hope C. & R. Co. 1.

WIRT COUNTY
Wells Drilling
Barnett, So. P. O. Co. 2.
Vandevender, W. C. Patterson 16.
Eagle, Graham O. & G. Co. 6.
Robert, Pell & Newman, Federal O. & G. Co. 30.

BRAXTON COUNTY
Marple, Davis & Marple 1.
Chensworth, Hope Gas Co. 1.

WOOD COUNTY
Rig
Grant heirs, So. P. O. Co. 3.
Wells Drilling
Grant, Congdon & Woodyard O. Co. 9.
Hebrak & Ruch heirs, Hines Peevey 3.
Curtis & Co., Quick Davis Oil Co. 1.

PLEASANTS COUNTY
Wells Drilling
Newland, White & Casper 1.
Wagner, Monongahela Oil Co. 14.
Colvin, Big Ben O. Co. 2.
Neely, Jones & Co. 1.
Delong, Delong O. & G. Co. 2.
Hooper, Rice Oil Co. 1.

ROANE COUNTY
Rig
Kincaid, G. L. Cabot 1.
Wells Drilling
Adams, Douglas Bros. 1.
Tucker, G. L. Cabot 1.
Conley, Heck Oil Co. 2.
Brown, Brown Farm O. Co. 3.

CALHOUN COUNTY
Rigs
Summers, M. F. Crawley 1.
McClain, Satterfield & Co. 2.
Board, Euclid O. & G. Co. 2.
Richards, L. B. Carroll 2.
Vanoy, Hope Gas Co. 1.
Hagan, L. B. Carroll 1.
Wells Drilling
Thomas, Thomas Vrawley 2.
McCoy, M. F. Crawley 2.
Betts, Hope Gas Co. 1.
Offett, Hope C. & R. Co. 1.
Gainer, McCall & Co. 1.
Simmons, Hope Gas Co. 1.
Simmons, Hope Gas Co. 2.

CLAY COUNTY
Rigs
Stockly, So. P. O. Co. 10.
Belcher, So. P. O. Co. 1.
Cato 220 acres, Ohio F. O. Co. 7.
Wells Drilling
Casto 260 acres, Virginian G. & O. Co. 9, 10.
Hall, U. F. G. Co. 1.
Goshorn-Brown, U. F. G. Co. 1.
Moore, Empire Pet. Co. 2.
Samples, Empire Pet. Co. 3.
Stockly, So. P. O. Co. 6, 7, 8, 9, 11.
Casto, O. P. O. Co. 6.

LINCOLN COUNTY
Rig
Adkins, Orlando O. & G. Co. 3.
Wells Drilling
McCallister, Cambridge Gas Co. 2.
Hodge, Carter Oil Co. 2.
Lincous, Vol. G. & E. Co. 2.
Stanley, Grant Gas Co. 1.
Porter, Union O. & G. Co. 1.
Commercial Realty Co., Commercial Realty Co. 1.
Pridemore, Ray Gas Co. 1.
Sikes, Col. G. & E. Co. 1.
Bias, Col. G. & E. Co. 1.
Nida, Col. G. & E. Co. 2.
Lucas, Maul Rock O. & G. Co. 1.
Nelson, Grant Gas Co. 1.
Carpenter, Grant Gas Co. 1.
Dent, Grant Gas Co. 1.

KANAWHA COUNTY
Wells Drilling
Edens, U. F. G. Co. 1.
Halsted, U. F. G. Co. 3.
Slack, Oakland Dev. Co. 2.
Undergraff, U. F. G. Co. 2.
Baillie, So. P. O. Co. 5.

BOONE COUNTY
Wells Drilling
Yawkey-Freeman, So. P. O. Co. 20, 16, 17, 21.
White, So. P. O. Co. 1.
Williams Coal Co., Pure Oil Co. 213, 223.
L. R. & P. tract, Pure Oil Co. 6, 26.
Robson-Pritchard, Pure Oil Co. 6.
Bedford, Owens B. & M. Co. 1.
C. R. M. Co., Owens B. & M. Co. 5.
Little Coal Land Co., Owens B. & M. Co. 3.
Cassingham, Owens B. & M. Co. 9.
B. C. L. & C. Co., Owens B. & M. Co. 5.
C. R. M. Co., Owens B. & M. Co. 26.
Alderson L. & D. Co., G. L. Cabot 1.
Suthipn, Dennison O. & G. Co. 1.
Coon, Dennison O. & G. Co. 1.

MINGO COUNTY
Wells Drilling
Cotigo, Pure Oil Co. 2.
Dempsey, Pilgrim O. & G. Co. 1.

LOGAN COUNTY
Rig
Dingess Run C. Co., Wacatock O. & G. Co. 7.
Wells Drilling
Dingess Run Coal Co., Wacatock O. & G. Co. 12.
McDonald, Wacatock O. & G. Co. 1.
Cole-Crane, Zonheimer & Gibbs 3.
Cole-Crane, Carter Oil Co. 3.

PUTNAM COUNTY
Rigs
Wall, C. & D. N. G. Co. 1.
Hanley, Ohio F. O. Co. 2.
Wells Drilling
Frazier, Kirtley & Co. 6.
Sims, Kirtley & Co. 1.
Griffin, Anchor Oil Co. 1.

CABELL COUNTY
Rig
Catman, Aetna O. & G. Co. 1.
Wells Drilling
Kirtley, Aetna O. & G. Co. 1.
Fowble, Sweetland & Co. 1.
Bumgardner, Shipe & Co. 1.

WAYNE COUNTY
Wells Drilling
Burks, Chartiers Oil Co. 1.
Burgess heirs, Ohio Fuel Oil Co. 1.
Rigs, 44; wells drilling, 174; total, 218.

SOUTHWEST PENNSYLVANIA

WELLS COMPLETED

WASHINGTON COUNTY
Davis, Wm. Dallmeuer 1..... 3
Lutton, Tague, Lutton & Co. 5..... dry
Bruner, Howard Oil & Gas Co. 1..... gas

ALLEGHENY COUNTY
Hugner, American N. G. Co. 2..... 3
Walters heirs, Parker & Co. 2..... 1
Wolf, John Nock 3..... 3
Faulk, Faulk & Co. 1..... gas
Benny, Duncan & Co. 1..... 3
Greek, McCormick & Co. 2..... gas
Cemetery lot, McCaffrey & Co. 1..... gas

BEAVER COUNTY
Williams, R. B. Adams 1..... dry
Dawson, H. A. Thompson 5 5

GREENE COUNTY
Wade, Carnegie Gas Co. 1..... dry
Litman, Clovis O. & G. Co. 2..... 5
Longanacker, J. L. Garard 5..... 5
Ritchie, People's Gas Co. 1..... dry
Sellers, Fox Hill O. & G. Co. 3..... gas
Minor, People's Gas Co. 1..... gas
Martin, Enterprise O. & G. Co. 1..... gas
Main, South P. O. Co. 1..... gas
McCullough, Carnegie Gas Co. 1..... dry
Scott, Carnegie Gas Co. 2..... 40
Day, Tague & Cummins 1..... gas
Ray, Mfrs. L. & H. Co. 1..... gas
Bell, Roy Clovis & Co. 1..... gas
Strosnider heirs, Strosnider O. & G. 1 gas

Wells completed	26
Production	68
Dry	5
Gas	12

WASHINGTON COUNTY
Rigs
Bedillion, Day & Bumgard 1.
Craft, Mfrs. L. & H. Co. 1.
Wells Drilling
Wilson, New Oil & Gas Co. 13.
Elliott heirs, Mfrs. L. & H. Co. 1.

ALLEGHENY COUNTY
Wells Drilling
Borland, J. Elder 1.
Brown, Anderson & Co. 1.
Dean, Dunlap & Co. 1.
Wilson heirs, Oles & Co. 1.
O'Neil, Phila. Oil Co. 6.
Troutman, Schuck & Co. 1.
Shenott, Leidecker & Co. 4.

GREENE COUNTY
Rigs
Haines, People's Gas Co. 1.
Headlee, South P. O. Co. 2.
King, Carnegie Gas Co. 1.
Caseman, Caseman O. & G. Co. 1.
Keller, Dunmar O. & G. Co. 1.
Linch, Phila. Oil Co. 2.
Wells Drilling
Dulaney, Carnegie Gas Co. 1.
Headlee, Highland O. & G. Co. 3.
Lemley, Dunmar O. & G. Co. 2.
Lemley heirs, Fox O. & G. Co. 1.
Haines, People's Gas Co. 2.
Fox, Martin O. & G. Co. 3.
Blaker, Carnegie Gas Co. 1.
Williamson, Fred Garrison 1.
South, Fred Garrison 1.
Snider, Covert Bros. & Co. 2.
Plants, Carnegie Gas Co. 3.
Wimer, Mfrs. L. & H. Co. 1.
Stewart, Carnegie Gas Co. 2.
Rutan, Carnegie Gas Co. 2.
Goodwire, Carnegie Gas Co. 1.
Rutan, Consumers Gas Co. 1.
Powers, N. G. Co. of W. Va. 2, 3.
Rutan, N. G. Co. of W. Va. 3.
Cooper, Mfrs. L. & H. Co. 1.
Huffman, Waynesburg Home Gas Co. 1.
Rigs, 8; wells drilling, 30; total, 38.

SOUTHEASTERN OHIO

WELLS COMPLETED

MONROE COUNTY
Scott, Carner & Co. 3..... 5

PERRY COUNTY
Paxton, Holliday & Co. 4..... 5
Conway heirs, Pure Oil Co. 1..... 25

HOCKING COUNTY
Brimner, Gorton Oil Co. 3 5
Huggins, O. F. S. Co. 1..... 25
Miller heirs, Graystone Oil Co. 2..... 290
Rauber, Preston Oil Co. 3..... 5
Bowlby, Old Town O. & G. Co. 1..... dry
Cobb-Bradley, A. M. Squire 15..... 85
Fling, Hocking Valley Drilling Co. 3.. 10

HOLMES COUNTY
Miller, Ark. Fuel Oil Co. 1..... gas
Gordon, Empire G. & F. Co. 1..... gas
Bird, East Ohio Gas Co. 3..... gas
McCullough, East Ohio Gas Co. 3..... 20
Kendall, East Ohio Gas Co. 4..... gas
Miller, Pure Oil Co. 2..... 5
Kendall, Empire G. & F. Co. 3..... gas
Kendall, Ohio Fuel Gas Co. 1..... gas

MUSKINGUM COUNTY
Untersumler, Stoltz & Co. ..... gas
Harrop, J. W. Rusk 9..... 5

LICKING COUNTY
Vandenbark, Carter Oil Co. 11..... 100
Romine, E. H. Everett Co. 3..... 170
Orr, Midland Oil Co. 3..... 140
Melick Bros., Atha Oil Co. 12..... gas
McKinney, Rocky Fork Oil Co. 24.... 2
Ferry, Edmonds & Co. 4..... 7
McKinney, Rugg & Co. 1..... 6
Monigomery, E. H. Everett Co. 5..... 160
Wright, Pure Oil Co. 2..... 150
Dissonnet, J. T. Bebout 2 50
Smith-Warren, Wehrle Bros. 7..... 2

COSHOCTON COUNTY
W. W. Ashcraft, Pure Oil Co. 13..... 10
Jacob Ashcraft, Pure Oil Co. 4..... 25

FAIRFIELD COUNTY
Ruff, Carter Oil Co. 4..... dry

MORGAN COUNTY
Lovell, Glazier & Co. 9..... dry
Lovell, Glazier & Co. 10..... dry
Switzer, Sun Oil Co. 12..... 25
Hughes, Pure Oil Co. 4..... 25
Smith, Pure Oil Co. 6..... 20
Barringer, Pure Oil Co. 11..... 20
B. A. Barringer, Pure Oil Co. 3..... 20
Epley, Pure Oil Co. 8..... 25
Fye, Pure Oil Co. 5..... 35
Fletcher, Swingle O. & G. Co. 4..... gas

KNOX COUNTY
Davidson, Moore & Adams 1..... dry
Davidson, Margret Oil Co. 1..... 4
Davidson, Margret Oil Co. 2..... 5
Neff, East Ohio P. & R. Co. 1..... 10
Mowery, O. F. S. Co. 1..... gas

NOBLE COUNTY
Silley, O. F. S. Co. 1..... dry
Williams, Herds O. & G. Co. 3..... 2
Devoll, Cain-Duvell O. Co. 10..... dry
Boyde, Rucker & Co. 1..... 1
Boyde, Rucker & Co. 2..... 1
Nau, Nau & Co. 10..... dry
Brown, Kerain & Co. 1..... dry
Bettinger, Chas. Schneider & Co. 2.... 1
Williams, Estadt & Co. 5..... 2

MEIGS COUNTY
Potts, O. F. S. Co. 1..... gas
Crider heirs, Pure Oil Co. 3..... 3
Davis, Meigs & Summers 1..... 6
Gossett, Goldish & Co. 1..... 1
Jividen, W. N. Hovis 2..... 5
Cross, R. G. Gillespie 2..... 3

ATHEN COUNTY
Whaley, Beasley & Co. 1..... 4
Parker, Ohio Oil Co. 1..... 3
Wood, Roushausen & Co. 4..... 3
Lawson, Bickel & Co. 3..... 3
Radford, Gross & Frebault Co. 7..... gas

WASHINGTON COUNTY
Stanley, Palmer & Co. 1..... dry
Young, Becker & Co. 1..... 3
Bosel, Murphy & Co. 1..... 1
Wetz, W. Peterson 6..... dry
Hull, Carner & Co. 1..... dry
Bowersock, Campbell & Co. 1..... 7
Brooks, Binegar & Co. 1..... 1

JEFFERSON COUNTY
McCullough Bros., Featner & Co. 3.... dry

HARRISON COUNTY
Morehead, Osborne & Co. 1..... 2

BELMONT COUNTY
Hedershot, Howell & Co. 3..... 5

Wells completed	80
Production	1545
Dry	13
Gas	12

MONROE COUNTY
Wells Drilling
Hedleson, Sylvan O. & G. Co. 5.
Dillon, Dillon Farm Oil Co. 2.
Givens, Sylvania Prod. Co. 4.
Hines, Everest & Cobb 1.
Crawford, Staudt & Co. 4.

PERRY COUNTY
Wells Drilling
Pierson, Pierson O. & G. Co. 1.
Kochensparger, Carter Oil Co. 3.
Rend, Standard H. C. Co. 1.

HOCKING COUNTY
Rigs
Anthony, Gorden Oil Co. 4.
Wagner, Gorden Oil Co. 1.
Noble heirs, Gorden Oil Co. 2.
Miller heirs, Graystone Oil Co. 3.
Hemlock C. Co., Kachelmacher Estate 2.
Sunday C'k C. Co., Sunday C'k C. Co. 134.
Wells Drilling
Anthony, Gordon Oil Co. 3.
Miller, O. F. S. Co. 1.
Thresh, Thresh Oil Co. 1.
Mercer, Carter Oil Co. 1.
Thresh, Kline Estate 1.
Riggs, Adair & Co. 1.
Spurier, O. F. G. & F. Co. 1.
Sunday C'k C. Co., Sunday C'k C. Co. 133.

HOLMES COUNTY
Rig
Hanna, Empire G. & F. Co. 1.
Wells Drilling
Reese, Empire G. & F. Co. 1.
Schonauer, Ohio Oil Co. 2 .
Reed, Ohio Oil Co. 1.
Fites, C. E. & M. 1.
Connor, Empire G. & F. Co. 3.
Davenport, Empire G. & F. Co. 5.
Miller, East Ohio G. Co. 1.
Hastings, East Ohio G Co. 1.
Uhl, East Ohio G. Co. 4.
Forgy, East Ohio G. Co. 5.
Galley, East Ohio G. Co. 3.
Close, Pure Oil Co. 1.
Carnot, Pure Oil Co. 3, 4.

Kendall, East Ohio Gas Co. 5.
Baker, Empire G. & F. Co. 1.

GUERNSEY COUNTY
Rigs
Oliver, Ohio Oil Co. 1.
Williams, Logan Gas Co. 1.
Wells Drilling
Keith Bros., Keith & Co. 1.
Nelson, O. F. G Co. 1.
Donley, O. F. G. Co. 1.
Summafrank, O. F. G. Co. 1.
Nutton, Matthews & Co. 1.

MUSKINGUM COUNTY
Wells Drilling
Burris, Eastern C. B. Co. 1.
Irwin, Pure Oil Co. 1.
Mizer, Logan Gas Co. 1.

LICKING COUNTY
Rigs
Stitt, Whitehill & Co. 6.
Montgomery, E. H. Everett Co. 1.
McCullough, Mid-East Oil Co. 1.
Cotterman, Detex O. & G. Co. 5.
Claypool, E. H. Everett & Co. 1.
Wells Drilling
Fleming, W. W. & A. T. Wehrle 1.
Stitt, Whitehill & Co. 5.
Vanderbark, Carter Oil Co. 13.
Romine, E. H. Everett Co. 4.
Wilhelm, E. H. Everett Co. 2.
Bogle, Midland Oil Co. 1.
Mercer, Carter Oil Co. 2.
Morehead, Pure Oil Co. 1.
Porter, Mideast Oil Co. 1.
Campbell, O. F. S. Co. 1.
Cogle, Empire G. & F. Co. 1.
McKinney, Rocky Ford O. Co. 24.
Ferry, Edmonds & Co. 5.
McKinney, Rugg & Co. 2.
Stewart, Patton Bros. & Co. 1.
Weekiry, Hussey & Co. 4.
Farmer, Pure Oil Co. 3.
Cartal, Pure Oil Co. 3.
Bonar, M. F. Whitehill 1.
Orr, Glass & Hazlett 1.
Vandenbark, Carter Oil Co. 12.
Cornell, Carter Oil Co. 2.
Evans, Wehrle Bros. 3.
Hickman, Wehrle Bros. 3.
McClelland, Wehrle Bros. 5.

COSHOCTON COUNTY
McKee, Spindler-Donnan 4.
Fair, Ohio Oil Co. 15.
Conkle, East Ohio P. & R. Co. 1.
Wells Drilling
Wolfert, Spindler, Donan & Co. 4.
Hall, Pure Oil Co. 1.

FAIRFIELD COUNTY
Rig
Buren, O. F. S. Co. 1.
Wells Drilling
Turner, O. F. S. Co. 1.
Baker, Baker O. & G. Association 1.
Ruff, Sharpneck & Co. 1.

MORGAN COUNTY
Rigs
Findley, Carter Oil Co. 4.
Hudson, Carter Oil Co. 2.
Dutre, Carter Oil Co. 2.
Hughes, Pure Oil Co. 5.
Bush, Pure Oil Co. 3.
Fye, Pure Oil Co. 6.
Wells Drilling
Worthington, Metcalf & Co. 7.
Switzer, Sun Oil Co. 14, 13.
Souders, Sun Oil Co. 9.
Smith, Pure Oil Co. 7.
Barringer, Pure Oil Co. 4.
Fye, Pure Oil Co. 7.

KNOX COUNTY
Wells Drilling
Dugan, Ark. Fuel Oil Co. 14.
Mossholder, Murphy & Co. 1.
Gann, Pure Oil Co. 2.
Scholes, East Ohio P. & R. Co. 10.
Rabjohn, O. F. S. Co. 2.
Rowland, O. F. S. Co. 1.
Neiderhouse, O. F. S. Co. 1.

NOBLE COUNTY
Wells Drilling
Walters, W. N. G. Co. 1.
Gevres, Ames & Co. 16.
Williams, Herdz & G. Co. 4.
Secrest, Decker Bros. & Co. 1.
Thomas, Brown & Co. 1.
Shriver, Clark, Williams & Co. 1.
Warner, Gerst & Co. 1.

MEIGS COUNTY
Wells Drilling
Davis, Pure Oil Co. 3.
Crider, Rood & Co. 2.

ATHENS COUNTY
Wells Drilling
Brooks, Cook & Co. 1.
Penrod, Townsend O. & G. Co. 4.

WASHINGTON COUNTY
Rig
Schramm, Gray & Co. 1.
Wells Drilling
McMahan, M. M. Stover 11.
Merrow, Beeson & Co. 7.
Smith, Smith & Co. 1.
Wickens, Dillon & Co. 24.
Driscoll, Phillips & Co. 4.
Cummings, Campbell & Co. 1.

JEFFERSON COUNTY
Wells Drilling
Y. & O. Coal Co., Carnegie O. & G. Co. 1.
Warren heirs, Gregg Cable 2.
Edmonston, Tope & Co. 1.
Groves, Boyce & Co. 6.

CARROLL COUNTY
Wells Drilling
Harrington, N. G. Co. of W. Va. 2.
Allen, Unknown 1.
Dorance heirs, Brown, Voorhees & Co. 1.
Blackledge, N. G. Co. of W. Va. 2.

BELMONT COUNTY
Wells Drilling
Leyne, Pure Oil Co. 1.
Stonebraker, N. G. Co. of W. Va. 2.

COLUMBIAN COUNTY
Wells Drilling
Debout-Teeters, Benninghoff & Co. 13.
Miller, Maxwell & Co. 2.
Rigs, 22; wells drilling, 116; total, 138.

CENTRAL OHIO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Fairfield	0	0	0	0	0	1	1
Knox	0	0	0	0	1	8	9
Ashland	2	0	0	2	2	8	10
Medina	6	6	1	3	1	3	4
Lorain	5	0	1	4	1	10	11
Wayne	5	169	0	2	1	6	7
Holmes	7	22	0	5	4	18	22
Jackson	0	0	0	0	0	2	2
Hocking	0	0	0	0	0	1	1
Athens	5	0	3	2	0	5	5
Coshocton	2	0	0	2	3	2	5
Guernsey	0	0	0	0	4	0	4
Tuscarawas	0	0	0	0	0	1	1
Summitt	0	0	0	0	0	1	1
Total Dec.	32	198	5	20	17	66	83
Total Nov.	52	436	9	36	21	66	87
Difference	20	238	4	16	4	0	4

WELLS COMPLETED
ASHLAND COUNTY
Orange—J. F. Brockaway, Logan Gas 1 gas
J. W. Callahan, Logan Gas 1 gas
Wells completed 2
Gas 2

MEDINA COUNTY
Liverpool—K. & J. Sezanowicisz, Ohio Fuel Gas 1 gas
Phoebe Stroshopf, East Ohio Gas 1 gas
York—Louisa Ulmer, Logan Gas 3 gas
Chatham—Geo. W. Packard No. 2, E. R. Edson Sons Co. 15 1
Geo. W. Packard No. 2, E. R. Edson Sons Co. 16 dry
Geo. W. Packard No. 2, E. R. Edson Sons Co. 17 5
Wells completed 6
Oil wells 2
Production, oil 6
Dry 1
Gas 3

LORAIN COUNTY
Columbia—John Langbon, Ohio Fuel Gas 1 gas
Jess Adams, Logan Gas 2 gas
J. J. Squires, East Ohio Gas 1 gas
Oliver Leitner, Empire Gas & Fuel 4 gas
Grafton—J. Law, Ohio Fuel Gas 1 dry
Wells completed 5
Dry 1
Gas 4

WAYNE COUNTY
Wooster—Peter Skelly, Ohio Oil 4 75
Frank Miller, Ohio Oil 2 75
East Union—F. A. Richwine, Ohio Oil 5 20
W. T. Jacot, Logan Gas 1 gas
Cannan—Ida M. Snyder, Logan Gas 1 gas
Wells completed 5
Oil wells 3
Production, oil 170
Gas 2

HOLMES COUNTY
Monroe—Carl A. Gordon, Empire Gas & Fuel 1 gas
B. C. Bird, East Ohio Gas 3 gas
Wm. Miller, Ark. Fuel Oil 1 gas
Prairie—W. H. Miller 17, Pure Oil 3 12
Byron Kendall, Empire Gas & Fuel 2 gas
Hardy—Harriett McCullough, East Ohio Gas 3 10
Paint—Isaac Y. Miller, Ohio Fuel Gas 1 gas
Wells completed 7
Oil wells 2
Production, oil 22
Gas 5

ATHENS COUNTY
Carthage—J. & M. Schuller, Logan Gas 2 gas
W. O. & Mary Stout, Logan Gas 2 dry
Lonna T. Runyon, C. A. Cody 1 gas
Jones hrs., Walden & Co. 1 dry
Rome—W. P. Barrows, Dunham Bros. 1 dry
Wells completed 5
Dry 3
Gas 2

COSHOCTON COUNTY
Newcastle—Warren Giffin, Logan Gas 1 gas
Wm. Thacher, Upham Gas 1 gas
Wells completed 2
Gas 2

FAIRFIELD COUNTY
Well Drilling
Richland—S. S. Turner, Ohio Fuel Supply 1.

KNOX COUNTY
Rig
Jefferson—J. Rowland, Ohio Fuel Gas 1.
Wells Drilling
Jefferson—Rilia Rabjohn, Ohio Fuel Gas 3.
John & Mary Rice, Ohio Fuel Gas 1.
C. Arwiller, East Ohio Gas 1.
W. L. Greer, East Ohio Gas 2.
Jacob Greer, James E. Greer 1.
Geo. W. Schultz, J. B. Reed & Co. 1.
Mary E. Wander, The Upham Gas 1,
Butler—Geo. W. Criss, The Upham Gas 1.
Rigs, 1; wells drilling, 3; total, 9.

ASHLAND COUNTY
Rigs
Orange—K. H. Fluke, Logan Gas 1.
J. F. Brockaway, Logan Gas 2.
Wells Drilling
Hanover—John E. Workman, Ohio Fuel Gas 1.
John L. Stoudt, Ohio Fuel Gas 1.
Orange—G. B. Frey, Orange Oil & Gas 2.
Dave Umbaugh, Hulse & Kundtz 1.
P. C. Fritzinger, Preston Oil 1.
Greene—J. T. Jones, Ohio Fuel Gas 1.
Mohican—M. H. & J. H. Slate, Burton-Morgan Co. 1.
Troy—S. L. Markel, Logan Gas 2.
Rigs, 2; wells drilling, 3; total, 10.

MEDINA COUNTY
Rig
Liverpool—Phoebe Stroskopf, East Ohio Gas 2.
Wells Drilling
Lafayette—C. E. & E. Jones, Arthur & Mills 1.
Montville—Thos. F. Partian, Ohio Fuel Gas 1.
York—J. R. Mayes, Dillon & McFrederick Bros. 1.
Rig, 1; wells drilling, 3; total, 4.

LORAIN COUNTY
Rig
Columbia—W. C. Jasper, Ohio Fuel Gas 1.
Wells Drilling
Columbia—L. & J. Sabin, Ohio Fuel Gas 1.
Jasp. Jasper, Ohio Fuel Gas 1.
I. F. Ring, Ohio Fuel Gas 3.
Richard Putt, Ohio Fuel Gas 1.
J. Wetzel, Ohio Fuel Gas 1.
J. M. & A. Ashman, Wiser Oil 2.
G. & J. Herold, Wiser Oil 4.
Geo. Stinchcomb, Daugherty Bros. 1.
Thos. Armitage, Empire Gas & Fuel 2.
Avon—J. Schmidtz, Edson Co. 1.
Rig, 1; wells drilling, 10; total, 11.

WAYNE COUNTY
Rig
Paint—J. M. Westcott, Ohio Fuel Gas 1.
Wells Drilling
Wooster—Wooster Club, Burton-Morgan Co. 1.
Congress—Clayton Harmon, Glen Harmon & Co. 1.
Cannan—L. Metzger, Logan Gas 1.
Millard Fulton, Klise-Eckstein-McCann 2.
Earl Kinch, Wm. Denny & Co. 1.
J. Brikerhoff, Arthur & Mills 2.
Rig, 1; wells drilling, 6; total, 7.

HOLMES COUNTY
Rigs
Hardy—J. E. & M. Miller, East Ohio Gas 1.
Jesse P. Close, Empire Gas & Fuel 2.
Kilbuck—John W. Patterson, East Ohio Gas 1.
Alvin W. Graham, East Ohio Gas 1.
Wells Drilling
Monroe—Elmer E. Connor, Empire Gas & Fuel 2.
U. S. Davenport, Empire Gas & Fuel 5.
Geo. W. Hanna, Empire Gas & Fuel 1.
Prairie—W. H. Miller, Pure Oil 2, 4.
Wayne F. Kendall, East Ohio Gas 5.
W. S. & E. Baker, Empire Gas & Fuel 1.
Richland—Geo. W. Brown, Logan Gas 1.
Hardy—J. R. Forgy, East Ohio Gas 5, 6.
G. & M. Galley, East Ohio Gas 3.
W. H. Uhl 10-a., East Ohio Gas 4.
John R. Hastings, East Ohio Gas 1.
Warren L. Close, Pure Oil 1.
Kilbuck—Albert W. Schoonover, Ohio Oil 2.
Robt. & Carey Reed, Ohio Oil 1.
J. P. Reese, Empire Gas & Fuel 1.
Albert C. Fites, Klise-Eckstein-McCann 1.
Rigs, 4; wells drilling, 18; total, 22.

JACKSON COUNTY
Wells Drilling
Franklin—Geo. W. Westlake, Ohio Fuel Supply 1.
Washington—S. E. Oghier, Ohio Fuel Gas 1.
Wells drilling, 2.

HOCKING COUNTY
Wells Drilling
Benton—Emma Backus, Oh'o Fuel Gas 1.

ATHENS COUNTY
Wells Drilling
Carthage—F. Cole, Logan Gas 1.
C. D. Swartz, R. E. Henrick & Co. 1.
J. E. Bailey, Jay Oil & Gas 1.
Rome—E. S. Byron, H. W. Leeper & Co. 3.
Troy—J. N. Gaines, Kemp & Co. 1.
Wells drilling, 5.

COSHOCTON COUNTY
Rigs
Perry—Geo. Oxley, Logan Gas 1.
Moseholder, Murphy & Co. 1, 2.
Newcastle—Rodahave Canal Bed, Cline Bros. 1.
Wells Drilling
Clark—John Concle, East Ohio Gas 2.
White Eyes—E. Henderson, Empire Gas & Fuel 1.
Rigs, 3; wells drilling, 2; total, 5.

GUERNSEY COUNTY
Rigs
Adams—M. K. Wells, Logan Gas 1.
S. R. Williams, Logan Gas 2.
A. G. Summa, Ohio Fuel Gas 1.
George Bell, Ohio Fuel Gas 1.
Rigs, 4.

TUSCARAWAS COUNTY
Well Drilling
Busks—E. P. Mizer, Logan Gas 1.

SUMMITT COUNTY
Well Drilling
Richfield—Della McKee, Hulse & Kundtz 1.

LIMA FIELD

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wood	9	108	0	0	3	2	5
Hancock	8	179	1	0	1	6	7
Allen	2	45	0	0	0	1	1
Auglaize	2	1	1	0	0	0	0
Sandusky	4	28	1	0	0	2	2
Mercer	6	68	0	0	1	4	5
Van Wert	0	0	0	0	0	3	3
Seneca	1	0	1	0	1	0	1
Lucas	1	8	0	0	3	3	3
Ottawa	3	29	0	0	0	2	2
Shelby	5	117	0	1	0	3	3
Hardin	2	28	0	0	0	2	2
Paulding	1	5	0	0	2	1	3
Defiance	0	0	0	0	0	1	1
Michigan	0	0	0	0	0	4	4
Total Dec.	44	616	4	1	8	24	42
Total Nov.	45	445	7	6	4	55	59
Difference	1	171	3	5	5	21	17

WELLS COMPLETED
WOOD COUNTY
Montgomery—M. M. Hutton, Dreutline Estate & Co. 12, 13 abd
Jennie Shroyer, Hoxworth & Ryder 3, 4 abd
Freedom — Hendline, Cleveland Fuel Oil 6, 7 abd
A. C. Austin, Fitzgerald & Stout 2, 3. abd
Plain—Lehman Bros. Ohio Oil 1 abd
Brown Bros., Ohio Oil 7 abd
Henry—David F. Biehler, Ohio Oil 20 10
Liberty—Potter-Miller, The Sun Co. 15 20
Portage — Maria Coffinberry, F. Lee Rouse & Co. 11 7
R. S. Fundom, Thos. Benschoter 2, 3, 4, 5, 6, 11, 12, 13, 14 abd
Middleton—Frank Rogers, Otto Brown 6 5
Althea Jamison, Lechner & Twining 2 6
John Davis, Waterville Gas & Oil 7 2
Troy—W. & H. Hartman, Geo. W. Hoffman 7 30
Lake—Hattie Krummel, Lantz, Schultz & Co. 2 3
Webster—Chas. Gelden, John Gelden & Co. 4 15
Wells completed 9
Production 108
Abandoned 19

HANCOCK COUNTY
Liberty—B. B. Porter, B. B. Porter 2 15
J. Steen, Base Line Oil 8 45
J. K. Wheeler, West End Oil 2 45
Jane Wheeler, Star & Clark 2 25
Allen—Hy Franks, F. J. Pool Estate 11 20
Eagle—Fred Fried, R. T. Rittenhouse 1. 25
Orange—W. W. Eaton, Ohio Oil 14 4
Biglick—L. Wanders, River Cave Gas & Oil Synd. 1 dry
Wells completed 3
Production 179
Dry 1

ALLEN COUNTY
Bath—S. H. Vore, C. A. Peavey & Co. 3 5
Wm. Lanny, Delphos Drilling Co. 1 46
Wells completed 2
Production 45

AUGLAIZE COUNTY
Moulton—C. & D. Carr, Boston-S. W. Oil & Gas 1 1
Washington—J. Reibesell, E. B. Jack & Co. 1 dry
Wells completed 2
Dry 1
Production 1

SANDUSKY COUNTY
Madison—C. H. Paul, Paul Oil 3 10
C. H. Paul, Paul Oil 3 dry
Woodville—G. Magsig, Gustave Magsig 27 8
C. W. Graham, Ross & Co. 4, 5 abd
G. Magsig, Gustave Magsig 1, 2, 3, 4, 5 abd
F. Yeastings, Ohio Oil 27, 29, 30, 31. abd
Jackson—Geo. Vandersall, Frank Haubert & Co. 4 10
Scott—J. Bauman, Ohio Oil 22, 23 abd
Von Thurn Estate, D. J. Bonawit 12. abd
Washington—Geo. Lehman, Ohio Oil 10, 11, 12 abd
H. Myers No. 1, Henry C. Myers 2, 6. abd
R. F. Netcher, Netcher, Magsig & Co. 1 abd
Wells completed 4
Production 28
Dry 1
Abandoned 20

MERCER COUNTY
Center—W. M. Miller, Mack P. Colt 12 12
W. M. Miller, Mack P. Colt 13 20
Chas. D. Wuester, H. H. Cuppler & Co. 1 15
Jefferson—A. & A. Metzger, June Oil 1 10
Recovery—A. Heitcamp, A. W. Neely & Co. 2 1
Union—Geo. F. Griffin, E. A. Kuhns & Co. 20 10
Wells completed 6
Production 68

SENECA COUNTY
Jackson—Philena Flack, Jerry Oil 1 dry

LUCAS COUNTY
Jerusalem—R. H. and M. A. Eck, Ohio Oil 18 8

OTTAWA COUNTY
Harris—S. F. Alyn, Ohio Oil 2 8
H. W. Nieman, Sherman, Richards & Co. 13 19
Clay—Amelia Kuhlman, A. Jake Smith 2 3
Wells completed 3
Production 29

SHELBY COUNTY
Cynthian — J. Pileman, Slagel & Johnston 3 40
Joe Siegel, Wittmer Property Trus. 3 62
F. Grillott, Lee A. Watson 1 10
J. Barhorst, Lee A. Watson 1 5
J. Moyer, Fort Laramie Oil & Gas 1 gas
Wells completed 6
Production 117
Gas 1

HARDIN COUNTY
McDonel — Polly McConnell, Boston-S. W. Oil & Gas 1 8
Mary Clark, Irwin, Boston-S. W. Oil & Gas 3 20
Wells completed 2
Production 28

PAULDING COUNTY
Benton—Brady heirs, J. W. McIntosh 2 5

WOOD COUNTY
Rigs
Plain—L. H. Kramer, David Eckler 34.
Liberty—Caleb Mercer, Ohio Oil 12.
Webster—Hugh Stewart, Hugh Stewart 1.
Wells Drilling
Plain—Harley Avery, Schiedt, Hamman & Huston 4.
Henry—F. Biehler, Ohio Oil 28.
Rigs, 3; wells drilling, 2; total, 5.

HANCOCK COUNTY
Rig
Eagle—Alice Stauffer Star & Clark 8.
Wells Drilling
Liberty—J. Steen, Base Line Oil 9.
J. K. Wheeler, West End Oil 3.
Jane Wheeler, Star & Clark 3.
Allen—J. E. Huntington, Ohio Oil 14.
Marion—J. G. Oberholtzer, Findlay Petroleum 14.
Eagle—Fred Freed, R. T. Rittenhouse 2.
Rigs, 1; wells drilling, 6; total, 7.

ALLEN COUNTY
Well Drilling
Bath—Wm. Lanny, Delphos Drilling 2.

SANDUSKY COUNTY
Wells Drilling
Woodville—Herman Linke, Chas. F. Zeising & Co. 1.
Jackson—Geo. Wilhelm, Paul Oil 2.
Wells drilling, 2.

MERCER COUNTY
Rig
Gibson—H. Lechner, J. H. Wilson 5.
Wells Drilling
Center—W. M. Miller, Mack P. Colt 14.
C. Nolan, Mack P. Colt 1.
Chas. D. Wuester, H. H. Cuppler & Co. 2.
Recovery—Rose Fisher, Sam W. Tate, Jr., 2.
Rigs, 1; wells drilling, 4; total, 5.

VAN WERT COUNTY
Wells Drilling
York—Wm. George, Wheeler Oil 4.
Willshire—A. J. Cully, J. H. Harmon & Co. 1.
Ridge—J. E. Moore, Calvin Neely & Co. 2.
Wells drilling, 3.

SENECA COUNTY
Rig
Clinton—Arthur Geyer, Arthur Geyer 1.

LUCAS COUNTY
Wells Drilling
Monclova—Wm. Black, Swan Creek Oil & Gas 2.
Amelia Ward, Doblinger Bros. 2.
Jerusalem—R. H. and M. A. Eck, Ohio Oil 19.
Wells drilling, 3.

OTTAWA COUNTY
Wells Drilling
Harris—John H. Meyer, Ohio Oil 6.
Catawba—John Lauden, Underwood Oil & Gas 1.
Wells drilling, 3.
SHELBY COUNTY
Wells Drilling
Cynthian — Joe Siegel, Wittmer Property Trustee 4.
F. Grillott, Lee A. Watson 2.
F. Sherman, Ellerman Oil 1.
Wells drilling, 3.
HARDIN COUNTY
Wells Drilling
McDonel—Mary Clark Irwin, Boston-S. W. Oil & Gas 4.
Wm. Cokley & Co., Cokley Oil 1.
Wells drilling, 2.
PAULDING COUNTY
Rigs
Harrison—C. C. Springer, John T. Schunck 5.
A. M. Bailey, U. S. A. Oil 6.
Well Drilling
Benton — Geo. Birkhold, Estes, Myers & Bailey 1.
Rigs, 2; wells drilling, 1; total, 3.
DEFIANCE COUNTY
Well Drilling
Adams—Adams Township Oil & Gas 1.
MICHIGAN
SAGINAW COUNTY
Wells Drilling
Saginaw — N. W. Saginaw, Saginaw Prospecting Co. 3, 4.
JACKSON COUNTY
Well Drilling
Napoleon — Silvers, Jackson County Oil & Gas 1.
MONROE COUNTY
Well Drilling
Dundee—Frank Roe, Jackson County Oil & Gas 1.

ILLINOIS FIELD

Summary of Field Operations

	Comp.	Prod.	Dry	Rigs	Drg.	Ttl.
Clark	2	190	2	0	3	3
Cumberland	1	2	0	0	0	0
Crawford	3	77	0	1	4	5
Lawrence	1	70	0	0	1	1
Wabash	20	1,570	4	0	39	29
Marion	1	10	0	0	1	1
Coles	1	0	1	0	1	1
Jackson	0	0	0	0	3	3
Morgan	0	0	0	0	3	3
Douglas	0	0	0	0	1	1
Union	0	0	0	0	1	1
Fayette	0	0	0	1	1	2
Edwards	0	0	0	1	0	1
Jasper	0	0	0	0	2	2
Total Dec.	29	1,919	7	3	49	53
Total Nov.	26	2,377	6	2	53	55
Difference	3	458	1	1	4	3

WELLS COMPLETED
CLARK COUNTY
Parker—David Lee, R. A. Young & Co. 23 ... 100
M. and H. T. Pinnell, R. E. Moffett & Co. 35 ... dry
Casey—John Laigner, R. H. Heaton & Co. 4 ... dry
Martinsville—Nettie Baker, W. C. McBride, Inc. 10 ... 90
Wells completed ... 4
Production ... 190
Dry ... 2
CUMBERLAND COUNTY
Union—M. Clemens, Campbell, Peck & Co. 1 ... 2
CRAWFORD COUNTY
Martin—John Melverne heirs, Frost Oil 1 ... 15
Montgomery—John Booker, R. E. Young & Co. 2 ... 12
Mary Duncan, Henry C. Lloyd & Co. 6 ... 50
Honey Creek—I. H. Miller, Ohio Oil 2.. abd
S. S. Reinohl, Karns & Schreckengest 3, 4 ... abd
Wells completed ... 3
Production ... 77
Abandoned ... 3
LAWRENCE COUNTY
Dennison—Joseph Gray, Ohio Oil 35 ... 70
Joseph Gray, Ohio Oil 24 ... abd
E. R. Robins, James T. Griggs 1, 2... abd
Sherm Gillespie, Big Four Oil & Gas 17 ... abd
Bridgeport—E. A. Fyffe, Snowden-McSweeney 3, 10 ... abd
M. L. Cooper, Ohio Oil 1 ... abd
Wells completed ... 1
Production ... 70
Abandoned ... 7
WABASH COUNTY
Wabash—Holson-Dorney Max Oil 5 ... 95
Holson-Dorney, Doin Oil 2 ... 75
Tracey heirs, Risley & Co. 1 ... 165
Sallie Compton, Snowden Bros. 1... dry
Jacob Stillwell, Sargent, Hartman & Co. 2 ... 200
Jacob Stillwell, Sargent, Hartman & Co. 3 ... 150
Mack Madden, Sargent, Hartman & Co. 1 ... 85
F. M. Leek, unknown 2 ... 100
F. M. Leek, unknown 3 ... 100
J. G. Cisel, Silurian Oil 1 ... 40
Wm. Banks, Hope Oil Co. 2 ... 35
S. J. Stillwell, Wabash Oil 4 ... 10
S. J. Stillwell, Wabash Oil 5 ... 50
Mack Madden, Adams Corner Oil 3... dry
Mack Madden, Adams Corner Oil 4.. 50
Mack Madden, Adams Corner Oil 5.. 30
Johnson heirs, Art Smith & Co. 2 ... dry
James Hogan, Joe Young, Jr., & Co. 1 350
H. A. Fox, Joe Young, Jr., & Co. 5... 35
J. H. Stillwell, J. H. Brian & Co. 1... dry
Wells completed ... 20
Production ... 1570
Dry ... 4
MARION COUNTY
Centralia—Fannie McIntosh, James Oil 1 ... 10
COLES COUNTY
Ashmore—W. P. Green, C. L. Williams 1 ... dry
CLARK COUNTY
Wells Drilling
Johnson—B. F. Bailey, Thomas Stewart 3.
Martinsville — Wm. Howard, Trenton Rock Oil & Gas 3.
Wells drilling, 2.
CRAWFORD COUNTY
Rig
Oblong — Henryetta M. Wilson, Peoples Banking & Trust 9.
Wells Drilling
Martin—A. M. Shipman, James Pease & Co. 14.
Oblong—A. Reecy 40 acres, Mahutska Oil 17.
Honey Creek—I. H. Miller, Ohio Oil 3.
Prairie—Amelia E. Joseph, McNally & Starr 6.
Rigs, 1; wells drilling, 4; total, 5.
LAWRENCE COUNTY
Wells Drilling
Petty—Wm. Ross, Silurian Oil 18.
WABASH COUNTY
Wells Drilling
Wabash—O. A. Martin, Straight Eight Oil 2.
John G. Trimble, Joe S. Young, Jr., & Co. 1.
Barney, Joe S. Young, Jr., & Co. 1.
J. H. Stillwell, Young, Price & Leighty 1.
Ed Armstrong, Lindsay & Co. 1.
L. G. Stillwell, Hupp & Duff 1.
Mary Storckman, Sec. 2, unknown 1.
Catherine Kaiser, Andrews & Ballard 3.
L. G. Stillwell, Risley & Co. 1.
Trimble, Risley & Co. 1.
Tracey heirs, Risley & Co. 2.
John G. Trimble, Snowden & Co. 1.
J. H. McClain, Phipps, Blosser & Co. 1.
John Kogan heirs, Mayhew & Skidmore 3.
Lonna Morgan, Midland Oil & Ref. 2.
Diber, Karnes & Co. 1.
Cisil heirs, Eastern Gulf Oil & Hartman 1.
W. O. Johnson, Tyler Andrews & Co. 2.
Jesse Cisil, Clark & Orendorf 1.
L. G. Stillwell, Parrott Bros. 1.
Mike Schafer, unknown 1.
W. M. Banks, Hope Oil 3.
Mack Madden, Sargent, Hartman & Co. 2.
Joseph Stillwell, Sargent, Hartman & Co. 4.
Holson-Dorney, Mack Oil 6.
Holson-Dorney, Doin Oil 3.
J. H. Cisil, Silurian Oil 2.
F. M. Leek, Clark & Orendorf 3.
Mt. Carmel—Tanguary, Mt. Carmel Community Oil 1.
Wells drilling, 29.
MARION COUNTY
Wells Drilling
Sandoval—F. M. Guyon, Ohio Oil 8.
COLES COUNTY
Well Drilling
Charleston—Earl Thrakill, Vlock Oil Corp. 1.
JACKSON COUNTY
Wells Drilling
Bradley—Richenburg, Mid-Egypt Oil & Gas 5.
Voge, unknown 3.
Sugar Hill, New York-Chicago parties 1.
Wells drilling, 3.
MORGAN COUNTY
Wells Drilling
Jacksonville—Section 15-9-3w, W. F. Cody 2.
Section 15-9-4w, unknown 1.
Northeast part Range 1, Jacksonville parties 1.
Wells drilling, 3.
DOUGLAS COUNTY
Well Drilling
Sargent—W. W. Brown, Douglas Oil 1.
UNION COUNTY
Well Drilling
Pilot Knob—Near Alta Pass, W. MacSmith 1.
FAYETTE COUNTY
Rig
Fayette—John Baxter, H. McCurdy 1.
Well Drilling
Fayette—Ohio Oil 1.
Rigs, 1; wells drilling, 1; total, 2.
EDWARDS COUNTY
Rig
Near Grasville—Porter & Co. 1.
JASPER COUNTY
Wells Drilling
Granville—W. C. Miller, John Carr & Co. 1.
Arthur Lesmon, Pure Oil 1.
Wells drilling, 2.

INDIANA FIELD

Summary of Field Operations

	Comp.	Prod.	Dry	Rigs	Drg.	Ttl.
Wells	1	5	0	0	1	1
Jay	1	4	0	0	7	7
Adams	1	20	0	0	3	3
Grant	0	0	0	0	1	1
Delaware	2	0	2	0	0	0
Randolph	0	0	0	1	0	1
Gibson	3	10	2	0	2	2
Pike	1	15	0	1	4	5
Knox	0	0	0	0	5	5
Sullivan	1	2	0	0	4	4
Allen	1	20	0	0	2	2
Daviess	0	0	0	0	4	4
Hendricks	0	0	0	0	1	1
Jackson	0	0	0	0	1	1
Shelby	0	0	0	0	1	1
Spencer	0	0	0	0	1	1
Lagrange	0	0	0	0	1	1
Total Dec.	11	76	4	2	38	40
Total Dec.	14	165	2	1	31	32
Difference	3	89	2	1	7	8

WELLS COMPLETED
WELLS COUNTY
Chester—Sarah J. Irwin, Fountain City Oil & Gas 2 ... 5
BLACKFORD COUNTY
Harrison — A. J. Baker heirs, W. J. Baker 1, 2, 3, 4, 5, 6, 7, 8, 9..... abd
Abandoned ... 9
JAY COUNTY
Bear Creek — D. W. Callahan, J. J. Adams 9 ... 4
ADAMS COUNTY
Jefferson—W. T. Johnson, Geo. S. Lacknett 3 ... 20
GRANT COUNTY
Jefferson — A. & E. Anderson, Jacob Wides 13, 14, 15 ... abd
Liberty Hamilton, Jacob Wides 1 ... abd
Abandoned ... 4
DELAWARE COUNTY
Delaware—Levi Booker, Hoke, Sargent & Co. 1 ... dry
J. W. Goings heirs, DeSoto Oil Synd. & Houke 9 ... dry
A. J. Stephens, Galen H. Clary 2..... abd
Wells completed ... 2
Dry ... 2
Abandoned ... 1
GIBSON COUNTY
Union—Aug. Krisemeyer, J. H. Young Co. 1 ... dry
Barton—Herman Barrett, J. H. Young Co. 4 ... 10
Lucy T. English, Gem Oil Corp. 2 ... dry
Wells completed ... 3
Production ... 10
Dry ... 2
PIKE COUNTY
Clay—Claud Loveless, A. B. Bement 3.. 15
Monroe—Dello Wilson, Ohio Oil 2..... abd
Wells completed ... 1
Production ... 15
Abandoned ... 1
SULLIVAN COUNTY
Turman—W. W. Harris, J. T. Bolinger & Co. 4 ... 2
ALLEN COUNTY
Maumee—J. H. Gerber, Schuran Oil 2 .. 20
WELLS COUNTY
Well Drilling
Nottingham—H. J. Heistand, Say Oil 1.
JAY COUNTY
Wells Drilling
Bear Creek—J. Butcher, Hunt & Ainsley 1.
Irvin Campbell, H. L. Ogle & Co. 2.
H. Armontrout, Heeter & Daugherty 11.
C. E. Brinterhoff, Will Mesel 3.
D. W. Bergman, Mesel & Mesel 7.
Penn — C. C. Harris, Geological Products Corp. 4.
Green—Roe Houck, Bloxsome & Co. 1.
Wells drilling, 7.
ADAMS COUNTY
Wells Drilling
Jefferson—O. Baker, Geo. S. Lacknett 1.
Wabash—Armstrong heirs, Chicago Oil 2.
J. C. Steiner, M. S. Daugherty & Co. 2.
Wells drilling, 3.
GRANT COUNTY
Wells Drilling
Van Buren—Frank Green, O. F. Hutchens 1.
RANDOLPH COUNTY
Rig
Greene—W. Cline, T. O. Thorn 2.
GIBSON COUNTY
Wells Drilling
Barton — Edward Dorson, Murphy Oil of Pa. 1.
Center—John Wertz, Gray & Co. 5.
Wells drilling, 2.
PIKE COUNTY
Rig
Logan—E. Beck, Alex Singer & Co. 2.
Wells Drilling
Logan—Sarah Shoaf heirs, Andrews & Burden 2.
G. Robeling, Skidmore, Trustee, 2.
Clay—Claud Lawless, A. B. Bement 4.
R. M. and P. C. Stewart, Murphy Oil of Pa. 1.
Rigs, 1; wells drilling, 4; total, 5.
KNOX COUNTY
Wells Drilling
Decker—Musselman 300 acres, Eastern Gulf Oil 1.
Nellie M. Orr, Eastern Gulf Oil 1.
Henry Sullivan, unknown 1.
J. N. Ballantine 515 acres, Russell Prod. 1.
Henry Decker, Russell Prod. 1.
Wells drilling, 5.
SULLIVAN COUNTY
Wells Drilling
Turman—Josephine Dix, Ohio Oil & Kennedy 19.
Fairbanks—J. F. Harrison, Hollingsworth & Co. 3.
Hamilton—L. D. Loudermilk, Seitz & Co. 1.
Gill—F. W. Bryan, Fred Bays 1.
Wells drilling, 4.
ALLEN COUNTY
Wells Drilling
Maumee—Wm. Kammyer, Estes, Manion & Crouch 1.
J. H. Gerber, Schuran Oil 3.
Wells drilling, 2.
DAVIESS COUNTY
Wells Drilling
Veale—John Peek, Maple Oil 3.
Gaither, Sargent, Hartman & Co. 3.
McDougal, Sargent, Hartman & Co. 5.
Unknown, Washington parties 1.
Wells drilling, 4.
HENDRICKS COUNTY
Well Drilling
Clay—W. E. Christy, Amo Oil 1.
JACKSON COUNTY
Well Drilling
Near Freetown, unknown 1.
SHELBY COUNTY
Well Drilling
Van Buren—J. Hershbarger, L. Nicholson 1.
SPENCER COUNTY
Well Drilling
Dale—Huppert 160 acres, Murray, Howard & Co. 1.
LAGRANGE COUNTY
Well Drilling
Howe—Howe Oil & Gas 1.

KENTUCKY-TENNESSEE

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Warren	14	193	0	0	0	25	25
Allen	8	93	4	0	0	12	12
Barren	42	209	14	0	0	30	30
Owensboro district	14	57	6	0	0	19	19
Cumberland-Monroe	6	300	2	1	0	8	8
Adair	0	0	0	0	0	2	2
Russell	2	10	1	0	0	0	0
Hopkins	2	25	0	0	0	1	1
Simpson	1	4	0	0	0	3	3
Meade	1	0	1	0	0	0	0
Green	0	0	0	0	0	2	2
Wayne	8	32	3	0	0	20	20
Lee-Owsley	1	10	0	0	0	14	14
Knox	0	0	0	0	0	2	2
Lawrence-Johnson	19	173	1	0	5	20	25
Johnson-Magoffin	13	122	3	0	4	29	33
Floyd	5	0	0	5	0	15	15
Estill	6	18	0	0	0	6	6
Wolfe	0	0	0	0	0	3	3
Jackson	1	0	1	0	0	0	0
Boyd	0	0	0	0	0	1	1
Breathitt	0	0	0	0	0	1	1
McCreary	0	0	0	0	0	1	1
Morgan	0	0	3	0	0	5	5
Elliott	0	0	0	0	1	3	4
Greenup	0	0	0	0	0	0	0
Martin	2	0	0	2	0	0	0
Powell	2	8	0	6	0	0	0
Menifee	0	0	0	0	0	2	2
Laurel	0	0	0	0	0	1	1
Kentucky	149	1,254	39	8	10	225	235
Tennessee	10	2,511	5	0	1	15	16
Mississippi	1	0	1	0	3	10	13
Alabama	0	0	0	0	0	6	6
Georgia	0	0	0	0	1	4	5
Total Dec.	160	3,765	45	8	15	260	275
Total Nov.	126	1,554	30	16	17	285	302
Difference	34	2,211	15	8	2	25	27

KENTUCKY-TENNESSEE
WELLS COMPLETED
WARREN COUNTY
Bowling Green—J. Jenkins, Wilson & Co. 2 ... 3
Bessie Snell, New Domain 9... 30
Brownfield, Onsel-Harnahan Oil 7... 20
Cal Snell, Lincoln Oil Prod. Co. 3.... 38
Manning, Golden Fluid Oil Co. 3.... 15
Davis, Lincoln Oil Prod. Co. 1.... 20
Shannon, Collins & Co. 7... 6
Duncan, D. T. Belling 1... 15
Crowe, Ed Thessen 5... 4
Worden, C. P. Taneyhill 1... 5
Smith, Essex Pet. Co. 7... 10
J. H. Barbee, Wood & Co. 3... 10
J. H. Barbee, Wood & Co. 4... 2
Ford, Roy Hogan 7... 15
Wells completed ... 14
Production ... 193
ALLEN COUNTY
Scottsville—Joe Reed, McMullen & Co. 3 5
Kerley, Neil-Huebring Co. 13... 8
G. W. Pearson, J. F. Wuerth 11.... 75
Meador, W. K. White 2... 5
Devine, Unknown 1 ... dry
Cockrill No. 2, Holland & Cockrill 6 dry
Graves, W. K. White 3... dry
C. R. Boller, Boller & Stump 1... dry
Wells completed ... 8
Production ... 93
Dry ... 4
BARREN COUNTY
Glasgow—Pitcock, Houchins Leasehold Co. 16 ... 7
Pitcock, Houchins Leasehold Co. 17 8
Pitcock, Houchins Leasehold Co. 18.. 5
Pitcock, Houchins Leasehold Co. 19. dry
Gum, Houchins Leasehold Co. 4... dry
Warder, Elem O. & G. 11 ... 3
Jackman, B. B. Rice 2... 2
Howard, Fred Moore 9... 6
McCubbin, Fred Moore 11... 8
Jewell, Wood Oil 1 ... dry
Jewell, Wood Oil 2... 4
Bradford, Ziegler Bros., Scott & Hice 4 ... 10
T. Mansfield, Ziegler Bros. 22... dry
White, R. B. Taylor 1... dry
J. B. Rogers, Keyes Oil 1... 2
Jump, Keyes Oil 2... 4
Houck Bros., Wood Oil Co. 8... 3
M. E. Church, Wood Oil Co. 3... 6
W. M. Church, Wood Oil Co. 11... 4
Hucherson, Wood Oil Co. 3 ... dry
Boles, Smith & Son 1... dry
Ellis, Williams et al 1... 4
Dean, Esslinger Oil Co. 4... 5
Cassidy, Hiland Oil 10... 15
Chamberlin, Helper & Gorby 4... 3
Hucherson, Wood Oil Co. 3... dry
Fannie Preston, L. J. Emery, Jr., & Sons 3 ... 15
Fannie Preston, L. J. Emery, Jr., & Sons 4 ... 8
Fannie Preston, L. J. Emery, Jr., & Sons 5 ... dry
Fannie Preston, L. J. Emery, Jr., & Sons 6 ... dry
Richardson, L. J. Emery, Jr., & Sons 1 ... 5
Depp & Greer, L. J. Emery, Jr., & Sons 19 ... dry
Depp & Greer 36 acres, L. J. Emery, Jr., & Sons 1 ... 6
Depp & Greer 36 acres, L. J. Emery, Jr., & Sons 2 ... 6
McGlocklin, Porter & Co. 12 ... 7
McGlocklin, Porter & Co. 13 ... dry
W. Bales, T. L. Gorby 1 ... dry
Greer, L. J. Emery, Jr., & Sons 1 ... dry
Unknown, Young & Co. 1 ... dry
Duff, Consolidated Gas Co. 7 ... 26
Duff, Consolidated Gas Co. 8 ... 15
Depp, Consolidated Gas Co. 11 ... 20
Depp, Consolidated Gas Co. 12 ... 2
Wells completed ... 42
Production ... 209
Dry ... 14
OWENSBORO DISTRICT
Owensboro — A. Rogers, Diamont & Thompson 1 ... dry
T. F. Willis, L. J. Emery & Co. 1.... dry
J. Miller, Leonard & Co. 1 ... dry
Keith, Petroleum Extraction Co. 1... dry
Lafe Payne, I. N. Harkless 1 ... dry
J. R. Johnson, Kentucky Oil 3 ... dry
J. S. Collier, Leeper Oil 4 ... 10
Ira Jett, Leeper Oil 4 ... 6
F. V. Miller, Panther Creek Oil 10... 10
Abe Howe, Fred Carson 5 ... 10
Abe Howe, Pennsylvania-Indiana Oil 6 ... 10
O. T. Bandeen, White & Nicklin 7... 4
Gabbard, Thompson & Co. 2 ... 6
Howard, Pirth & Smith 2 ... 1
Wells completed ... 14
Production ... 57
Dry ... 6
CUMBERLAND-MONROE COUNTIES
Burkesville—H. Wells, W. S. Raydure 4 gas
By Blythe, Gartlan estate 5 ... 180
Bud Kerr, A. S. McClintock 5 ... 20
G. W. Strange, J. G. Whitlach 4 .... dry
Hicks, Grant & Co. 2 ... dry
Hughes, McClintock, Reid & Heckathorne 2 ... 100
Wells completed ... 6
Production ... 300
Dry ... 2
Gas ... 1
RUSSELL COUNTY
Creelsboro—B. F. Leach, Carnahan Oil 4 ... 10
N. Blesdee, Creelsboro parties 1..... dry
Wells completed ... 2

Production 10
Dry 1

HOPKINS COUNTY

Nortonville—Holliman, Copper Flash Oil 12 15
Holliman, Copper Flash Oil 13 10

Wells completed 2
Production 25

SIMPSON COUNTY

Franklin—Jim Peart, Mullin & Reagle 9 4

MEADE COUNTY

Gaston—Eva Carrington, W. S. Proper 1 dry

(EASTERN DIVISION)
WAYNE COUNTY

Monticello — Bridgman, Spradlin & Marsh 12 10
N. H. Crofton, E. M. Shearer & Co. 14 5
James Dabney, Superior Oil 12 5
J. A. Brown, Shear, Marsh & O'Keefe 5 10
J. A. Brown, Shear, Marsh & O'Keefe 6 2
Sherman Morrow, Beaver Petroleum 1 dry
G. C. Dodson, G. M. Work 2 ..... dry
G. C. Dodson, G. M. Work 3 ..... dry

Wells completed 8
Production 32
Dry 3

LEE-OWSLEY COUNTIES

Idamay—Fred Adams, Combs Bros. Dev. 4 10

LAWRENCE-JOHNSON

North Weir—L. H. Skaggs, Union Gas & Oil 11 5
P. P. Holbrook, Union Gas & Oil 34.. 20
J. J. Gambill, Union Gas & Oil 38..... 15
R. C. Miller, Union Gas & Oil 9 4
G. Evans, Union Gas & Oil 13 15
C. K. Dobyne, Union Gas & Oil 4 12
C. K. Dobyne, Union Gas & Oil 5 4
C. E. Frailey, Union Gas & Oil 7 8
C. E. Frailey, Union Gas & Oil 8 15
W. W. Bailey, Garrison & Townsend 3 4
L. T. Sparks, Garrison & Townsend 6. 10
C. K. Dobyne, Garrison & Townsend 18 4
C. K. Dobyne, Garrison & Townsend 19 15
C. K. Dobyne, Garrison & Townsend 20 12
C. K. Dobyne, Garrison & Townsend 21 7
J. C. Gilliman, Indian-Texas Pet. 13.. 10
Mary Holbrook, J. B. Cheuvront 3... 5
J. H. Ferguson, W. E. Schwartz 1.... dry

Wells completed 19
Production 173
Dry 1

JOHNSON-MAGOFFIN COUNTIES

South Weir — Abe Caudill, Petroleum Exploration 40 10
Abe Caudill, Petroleum Exploration.. 8
Abe Caudill, Petroleum Exploration.. 10
Shepherd, Petroleum Exploration ..... gas
J. J. Prater, Structure Oil 11 4
Oscar Wheeler, Hudson & Collins 3.. 20
Oscar Wheeler, Hudson & Collins 4.. 6
Oscar Wheeler, Hudson & Collins 5... 10
Marv Burke, R. G. Gillespie 4 4
J. H. Arnett, J. H. Arnett 13 20
J. H. Arnett, Red Rock Petroleum 19 30
Licking River, Fych Oil & Gas 5..... gas
Licking River, Fych Oil & Gas 6..... gas

Wells completed 12
Production 122
Gas 3

FLOYD COUNTY

Isenville — Elk Horn Coal properties, Ohio Fuel Oil 4 ..... gas
J. D. Turner, Ohio Fuel Oil 4 ..... gas
Jack Turner heirs, Eastern Carbon Black Co. 1 ..... gas
Kate Spencer, Eastern Carbon Black Co. 3 ..... gas
Rhoda Turner heirs, Thompkins Oil 1 gas

Wells completed 5
Gas 5

PSTILL COUNTY

Irvine—J. Henry unknown 1 2
Owen Puckett heirs, Superior Oil 2... 2
George Cain, Miller & Chiles 1 2
George Cain, Miller & Chiles 2 2
J. B. Rogers, Mountain Springs Oil 8. 5
Reed heirs, C. O. Ansler & Co. 1 5

Wells completed 6
Production 18

JACKSON COUNTY

McKee—Four miles from McKee, Upchurch Bros. 2 ..... dry

MORGAN COUNTY

West Liberty—Unknown, Burns O. & G. Co. 1 ..... dry
W. H. Bailey, Wallace, Bailey & Co. 1 dry
Unknown, Mid-South 1 ..... dry

Wells completed 3
Dry 3

MARTIN COUNTY

Inez—Al Carter, Big Derby O. & G. 2.. gas
Mayo properties, Leonard & Ralph 5. gas

Wells completed 2
Gas 2

POWELL COUNTY

Powell—A. Stewart, W. O. Dunham 1.. 3
P. M. Goff heirs, Petroleum Exploration 11 5

Wells completed 2
Production 8

TENNESSEE
WELLS COMPLETED
CLAY-JACKSON COUNTIES

Tinsley Bottom — Osgathorpe, Dafoe & Co. 1 ..... dry
Draper, Dafoe & Co. 4 3
Hamp Lynn, Dafoe & Co. 7 1500
James Grey, H. Z. Clarke 1 1000
Crabtree, W. J. Gibson 1 ..... dry
Crabtree, W. J. Gibson 2 ..... dry
Jeff, Leftus, Turner & English 1..... dry
Dr. Mitchell, Knox Oil Co. 1 ..... dry

Wells completed 8
Production 2503
Dry 5

MORGAN COUNTY

Sunbright—Ash, Russell Producing Co. 6 5
Widow Ellis, Russell Producing Co. 7 3

Wells completed 2
Production 8

MISSISSIPPI
WELLS COMPLETED
RANKIN COUNTY

Jackson—Section 7-3-3, Finkbine Lumber Co. 2 ..... dry

WESTERN DIVISION
WARREN COUNTY
Wells Drilling

Bowling Green—G. Davenport, T. A. Sheridan 9, 10.
Biddle, Cadet O. & G. 24.
Stone, Foster & Co. 8.
Keller, Al F. Haynes 1.
Brownfield, Onsel-Harnahan Oil 8.
Manning, Golden Fluid Oil 4.
Davenport, Wood Oil 23.
Grimes, Wood Oil 12.
Bessie Snell, New Domain O. & G. 10.
H. Jenkins, Wilson & Co. 3.
Haden, Frank Cooksey 1.
Ford, Roy Hogan 8.
Worden, C. P. Tarpyhill 2.
Christian, Phillips & Stewart 2.
Vance, Illinois-Kentucky Synd. 7.
Potter, Fred Moore & Pinky White 9.
W. R. Hutton, P. H. Lavelle 7.
Bryant, H. A. Henry 12.
E. Morehead, Hodge & Smith 2.
Morehead, Downing & Co. 3.
Thomas, Hodge & Smith 1.
Shannon, Wiles & Co. 4.
Covington Block 7 Wm. Zimmer 10.
Moulder, Ed Thessen 1.
Rigs, 0; wells drilling, 25; total, 25.

ALLEN COUNTY
Wells Drilling

Scottsville—Lee Moore, Lee Moore 6.
W. E. Oliver, A. E. Jeffert 15.
Beam, Keyes Oil 11.
E. Hinton, Clarion-Pittsburgh Oil 4.
Vern Douglass, Mrs. La Duc 1.
S. & K. Thaxton, Vic DeCleiny 5.
Angel Meredith, G. W. Hahn 11.
Edmonds, Keystone Securities Co. 13.
G. W. Pearson, J. F. Wuett 1.
Meador, W. K. White 3.
Bettie Evans, W. Pruitt Hall 14.
E. Neuman, Bastrus & Co. 3.
Rigs, 0; wells drilling, 12; total, 12.

BARREN COUNTY
Wells Drilling

Glasgow—Russell, Star Oil 5.
H. Meyers, Kopel Oil 2.
Marshall, unknown 1.
McCubbin, Fred Moore 12.
Jackman, B. B. Rice 3.
Bradford, Ziegler Bros., Scott & Hice 5.
Drennin, Ziegler Bros. 10, 11.
Trabue, Houchins Leasehold Co. 4.
Richardson, L. J. Emery, Jr., & Sons 2, 3.
F. Preston, L. J. Emery, Jr., & Sons 7.
Cassidy, Hiland Oil 11.
Gum, L. J. Emery, Jr., & Sons 5.
Depp-Greer, L. J. Emery, Jr., & Sons 20.
Ellis, Williams & Co. 2.
Smith, Smith & Son 1.
Glass, Eslinger Oil 1.
Houck Bros., Wood Oil Co. 9.
W. M. Church, Wood Oil Co. 12.
White & Smith, Harrington & Norris Bros. 3.
Maddox heirs, Harrington & Norris Bros. 2.
John Francis, T. L. Gorby 1.
Grimsyead, unknown 1.
Depp, Consolidated Gas Co. 12.
Duff, Consolidated Gas Co. 10.
Minnick, Keyes Oil 1.
Lewis, M. B. Williams & Co. 1.
Brown, D. M. Wilson 1.
Mathews, unknown 1.
Rigs, 0; wells drilling, 30; total, 30.

OWENSBORO DISTRICT
Wells Drilling

Owensboro—Keith, Foster Oil Co. 1.
R. B. Powers, Foster Oil Co. 1.
Near Taffy, Perry E. Tichnor 1.
Near Zion, Perry E. Tichnor 1.
Allen Brown, White Plains Oil & Gas Co. 1.
John Ward, White Plains Oil & Gas Co. 1.
W. P. Griffith, Pennsylvania-Indiana Oil Synd. 1.
C. A. Kelley, Pennsylvania-Indiana Oil Synd. 1.
John Burdette, Kentucky Oil Co. 2.
G. V. Barlow, Pearl Stevens 1.
Dave King, Panther Creek Oil 1.
J. W. Smith, Panther Creek Oil 11.
Susan Collier, Leeper Oil 5.
J. S. Collier, Leeper Oil 5.
Dave King, Creek Drilling Co. 5.
E. Barlow, Leeper Oil 7.
Howard, Pirtle & Smith 3.
Ira Crowe, Chicago Pet. Synd. 4.
L. Mercer, Pennsylvania-Indiana Oil Synd. 1.
Rigs, 0; wells drilling, 19; total, 19.

CUMBERLAND-MONROE COUNTIES
Wells Drilling

Burkesville—Cain, E. D. C. Lynch 2.
Sarah Sheckles, Wilcox Bros. 6.
Melton, Wilcox Bros. 2.
Davidson, Wilcox Bros. 1.
J. B. Riddle, W. S. Raydure 2.
O. Cheatham, Alta Oil 1.
D. Baker, F. Weddle 1.
Hunter Short, Morris Pet. Co. 4.
Rigs, 0; wells drilling, 8; total, 8.

ADAIR COUNTY
Wells Drilling

Columbia—Brockman, Haislet-Wood Co. 1.
F. Guthrie, C. D. McLennon 1.
Rigs, 0; wells drilling, 2; total, 2.

HOPKINS COUNTY
Wells Drilling

Madisonville—Holliman, Copper Flash Oil 14.

SIMPSON COUNTY
Wells Drilling

Franklin—Hogan, Small & Sully 11.
Slate, Slate Bros. 3.
John Pierce, McMullen & Reagle 1.
Rigs, 0; wells drilling, 3; total, 3.

GREEN COUNTY
Wells Drilling

Greensburg—Curry, T. S. Curry 1.
Tucker, United Carbon Co. 1.
Rigs, 0; wells drilling, 2; total, 2.

EASTERN DIVISION
WAYNE COUNTY
Wells Drilling

Monticello—S. Henninger, Illiken Oil 3.
J. B. Stinson, P. H. Kennedy 2.
Chas. Harmon, J. C. Marsh & Co. 1.
John Reis, Bertram & Marsh 1.
J. T. Hatfield, Marsh & Shearer 1.
J. A. Brown, Marsh & Shearer 1.
G. Y. Davis, Vulcan Oil 17.
Upchurch, Head, Brown & Co. 4.
Coffey heirs, Bell, Bell & Co. 3.
B. S. Huffaker, B. S. Huffaker 3.
James Dabney, Superior Oil 13.
G. W. Burnett, Bowden Oil 1.
H. Thompson, W. M. Bach 1.
Dave Adkins, D. C. Adkins 1, 2.
J. A. Brown, Shearer, Marsh & O'Keefe 7.
James Coper, Shearer, & Marsh 1.
James Coper, Dillion & Wetzel 8.
Dabney, Wood Oil 1.
John Flynn, Beaver Pet. 3.
Rigs, 0; wells drilling, 20; total, 20.

LEE-OWSLEY COUNTIES
Wells Drilling

Idamay—Logan Combs, Combs Bros. Dev. 1.
Elmer Evans, Combs Bros. Dev. 5.
Gourley, Redman & McGuire 16.
Thos. Foreman, Standard Oil of Kentucky 1.
Baker, Watkins & Co. 1.
Elmer Evans, Combs & Flemming 2.
Huntington, Huntington Oil Synd. 7.
Dave Mays heirs, Hunp. Duff & Co. 14.
James Hogan, G. S. McDonald 5.
El Rogers, Superior Oil 11.
Burns, Gross & Keaton 1.
Hignett, Benton & Co. 1.
Miller, Prewitt & Goff 10.
Near Foreman farm, Superior Oil 1.
Rigs, 0; wells drilling, 14; total, 14.

KNOX COUNTY
Wells Drilling

Barbourville—Dizney, Oklahoma operators 1.
Red Bird Creek, Beattyville parties 1.
Rigs, 0; wells drilling, 2; total, 2.

LAWRENCE-JOHNSON COUNTIES
Rigs

North Weir—J. J. Skaggs, Cumberland Pet. 4.
Robert Fyfee, Pluto Oil 6.
J. D. Bond, J. T. Hare & Son 3.
W. E. Skaggs, Hovis & Young 3.
C. Osborne, Skaggs, Miller & Co. 1.

Wells Drilling

North Weir—G. Evans, Union Gas & Oil 14.
C. E. Frailey, Union Gas & Oil 9, 10.
R. N. Sparks, Union Gas & Oil 5.
C. K. Dobyne No 2, Union Gas & Oil 6.
W. D. Lester, Union Gas & Oil 9.
Caney Sparks, Union Gas & Oil 7.
C. K. Dobyne, Union Gas & Oil 22.
Sanford Lyon, Union Gas & Oil 25, 26.
G. Kelley, Union Gas & Oil 13.
Ira Lester, Wm. Stone & Co. 9, 10.
Jesse Rose, Indian-Tex Pet. 11.
L. T. Sparks, Garrison & Townsend 8.
I. M. Hay, Garrison & Townsend 2.
S. T. Sparks, Garrison & Townsend & V. Adkins 8.
J. C. Gilliam, Indian-Tex Pet. 5.

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Classified Wants
Pages 118-119
DO IT NOW
YOU MAY MISS A BARGAIN

JOHNSON-MAGOFFIN COUNTIES
Rigs

South Weir—W. H. Collins, Petroleum Exploration 3.
Kelley Adams, Petroleum Exploration 7.
Eliza Powers, Clyde Oil 6.
Bailey heirs, Cobb, Lucas & Co. 7.

Wells Drilling

South Weir—Kelley Adams, Petroleum Exploration 6.
Mary Borders, Petroleum Exploration 2.
W. H. Conley, Bed Rock Pet. 22.
W. H. Conley, Bed Rock Pet. 30.
W. E. Patrick, Bed Rock Pet. 4, 5.
J. H. Arnett, Bed Rock Pet. 20.
Will Powers, Clyde Oil 1.
J. J. Prater, Structure Oil 12.
W. L. May, Patrick & Co. 1.
R. L. McCormick, Clyde Oil 2.
Mary Burke, R. G. Gillispie 5.
W. P. Adams, Oliver & Jenkins 7.
J. Love, Somerset Oil 11.
F. M. Hale, Copper & Sublett 3.
Gardner, New Domain 13.
Oscar Wheeler, Hudson & Collins 6, 7.
Sam Blanton, R. G. Gillispie 17.
F. M. Moore, R. G. Gillispie 6.
Coon Adams, Oliver & Jenkins 1.
Jessee Adams, Model Oil 4.
J. H. Arnett, J. H. Arnett 12.
W. M. Sayler, Carter Oil 4.
John Adams, Elkhorn Coal Corp. 1.
J. Adams, No. 2, Elkhorn Coal Corp. and Model Oil 2.
Allen, Holbrook & Co. 1.
Licking River, Fych O. & G. Co. 7, 8.
Rigs, 4; wells drilling, 29; total, 33.

FLOYD COUNTY
Wells Drilling

Drift—T. Collins, Yolondo Oil 2.
Mousie, Martin, Ohio Fuel 2, 3.
Miller Martin, Ohio Fuel 2.
Elkhorn Coal lands, Ohio Fuel 3, 5.
Mary Martin, Louisville G. & E. Co. 2, 3.
T. Martin, Louisville G. & E. Co. 4.
T. Allen, New Domain O. & G. Co. 5.
Ike Osborne, Distell-Martin Co. 1.
Jack Turner heirs, Eastern Carbon Black Co. 4.
Rhoda Turner heirs, Thompkins heirs 2.
Summitt area, American Roller Mills 20, 21.
Rigs, 0; wells drilling, 15; total, 15.

ESTILL COUNTY
Wells Drilling

Irvine—Owen Puckett heirs, Superior Oil 3.
J. B. Rogers, Mountain Springs 10, 11.
Reed heirs, C. O. Ansler & Co. 2, 3.
S. M. Maple, Reno Oil 1.
Rigs, 0; wells drilling, 6; total, 6.

WOLFE COUNTY
Wells Drilling

Torrent—600-acre tract, Petroleum Exploration 10.
H. Johnson, Petroleum Exploration 1.
C. M. Centers, Fultz & Co. 1.
Rigs, 0; wells drilling, 3; total, 3.

BOYD COUNTY
Well Drilling

Near Ashland, Sam J. De Bord 2.

BREATHITT COUNTY
Well Drilling

Jackson—Near Quicksand, Dukate & Co. 2.

McCREARY COUNTY
Well Drilling

McCreary—Sterns Coal Land, Brown & Co. 3.

MORGAN COUNTY
Wells Drilling

West Liberty—Goose, Blue Hills Dev. Co. 4.
Reed, Collier & Spradoan 1.
Near West Liberty, Jim Patton 1.
Unknown, Jim Patton 1.
Blair Mill, Collier & Co. 1.
Rigs, 0; wells drilling, 5; total, 5.

ELLIOTT COUNTY
Rig

Newton—B. A. Lewis, Smith & Garrison 2.
Wells Drilling
Newton—J. Dials, Cambell, Wheeler & Co. 3.
Fairfield School, J. McDonald 1.
Joe Wagner, J. McDonald 1.
Rigs, 1; wells drilling, 3; total, 4.

MENIFEE COUNTY
Wells Drilling

Leatherwood—Widow Reed, McKinney Bros. 1.
Hamp Rawling, W. O. Back 3.
Rigs, 0; wells drilling, 2; total, 2.

LAUREL COUNTY
Well Drilling

London — 10 miles southwest of London, Standard Oil of Kentucky 1.

TENNESSEE
CLAY-JACKSON COUNTIES
Rig

Tinsley's Bottom—Williams, Dafoe & Co. 6.
Wells Drilling
Tinsley's Bottom—Hamp Lynn, Dafoe & Co. 8, 9.
K. Thurman, H. Z. Clarke 1.
Am Hamilton, C. F. Dickson 1.
Connor, The State Oil 1.
Stillhouse Creek 1.
Rigs, 1; wells drilling, 6; total, 7.

FENTRESS COUNTY
Wells Drilling

Oneida — Head of Wolfe Creek, Phelps, Toomey & Co. 1.
Alvin York, Pa. Smith 1.
Tan Bark, Tennessee Stave & Lumber Co. 1.
Rigs, 0; wells drilling, 3; total, 3.

OVERTON COUNTY
Wells Drilling

Livinston—Three miles east of Livingston, A. H. Hisey & Co. 1.
Windle, Duncan & Co. 1.
Rigs, 0; wells drilling, 2; total, 2.

PUTNAM COUNTY
Well Drilling

Gainesboro—Double Springs, Clark & Co. 1.

MORGAN COUNTY
Wells Drilling

Sunbright—Sommers, Cockerel & Co. 1.
Glades Store, Knoxville parties 2.
Fee, Russell Producing Co. 7.
Rigs, 0; wells drilling, 3; total, 3.

MISSISSIPPI
RANKIN COUNTY
Rig

Jackson—Pearl River, New York parties 1.

COPIAH COUNTY
Rig

Hazelhurst—Near Brandywine, B. W. White 1.

HOLMES COUNTY
Well Drilling

Coxburg—18-31-1, Freeman Oil 1.

YAZOO COUNTY
Well Drilling

Eden—I. S. Reed, 25-31-1w, Willis & Burns 1.

SCOTT COUNTY
Well Drilling

Forest—Section 21-6-8, Graham, Mississippi O. & G. Synd. 1.

CLAIBORNE COUNTY
Wells Drilling

Port Gibson—5-11-2, Young, Mississippi Exploration Co. 1.
6-11-1, Westside, Michael Zink 1.
Rigs, 0; wells drilling, 2; total, 2.

HINDS COUNTY
Well Drilling

Jackson—Reeder, Johnson Oil 1.

WASHINGTON COUNTY
Well Drilling

Glen Allen—30-14-9, Williams, Alhambra O. & G. 1.

TISHOMINGO COUNTY
Well Drilling

Iuka—Unknown parties 1.

TALLAHATCHIE COUNTY
Well Drilling

Charleston — 23-25-2, Harvey, Shreveport parties 1.

MARSHALL COUNTY
Well Drilling

Holly Springs—33-2-3, Huffman, T. B. Slick 2.

UNION COUNTY
Rig

New Albany—Ten miles northeast of New Albany, Jean De Villiard 1.

ALABAMA
MORGAN COUNTY
Well Drilling

Albany—6-6-4, English, Albany-Decatur Oil 1.

BALDWIN COUNTY
Well Drilling

Bay Minette—21-2-3, Evans, Stell Oil 1.

SUMPTER COUNTY
Well Drilling

Cortopa—Sam W. Kendall 1.

HALE COUNTY
Well Drilling

Greenburg—Hale Oil 1.

SHELBY COUNTY
Well County

Chelsea—Scott, Cooksey Oil 1.

WILCOX COUNTY
Well Drilling

Selma—Blue Belle Oil 1.

GEORGIA
PULASKI COUNTY
Rig

Hawkensville—Florida Construction Co. 1.

JEFF DAVIS COUNTY
Well Drilling

Hazelhurst—Mid-Georgia Oil 1.

TELFAIR COUNTY
Well Drilling

Scotland—Telfair Oil 1.

BURKE COUNTY
Well Drilling

Green Cut—Three Creeks Oil 1.

WHITFIELD COUNTY
Well Drilling

Dalton—Richardson & Co. 1.

WHAT AND WHERE TO BUY

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Camp ell, J. A.
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Newton Process Mfg. Co.
Southwestern Engineering Co., Inc.
Southwestern Engineering Corp.
Tulsa Boiler & Machinery Co.

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Acetylene Apparatus—
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Prest-O-Lite Co., Inc.

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Prest-O-Lite Co., Inc.

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Hoover Steel Ball Co.
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Moore, Lee C. & Co., Inc.
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Columbian Steel Tank Co.
Petroleum Iron Works Co.

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Timken Roller Bearing Co.

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Frick-Reid Supply Co.
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Murray Rubber Co.
Stanley Belting Corp.
United States Rubber Co.

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U. S. Tool Co.

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Hughes Tool Co.
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Columbian Rope Co.
Frick-Reid Supply Co.
Republic Supply Co.
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Ajax Rope Co., Inc.
American Cable Co.
Black Steel & Wire Co.
Broderick & Bascom Rope Co.
Continental Supply Co.
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Leschen, A. & Sons Rope Co.
Longhart Supply Co.
National Supply Co.
Republic Supply Co.
Wickwire-Spencer Steel Corp.

Calf Rope—
Ajax Rope Co., Inc.
Columbian Rope Co.

Calf Wheels—Steel—
International Derrick & Equipment Co.
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Gott, H. P. Mfg. Co.

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American Car & Foundry Co.
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Bovaird Supply Co.
Continental Supply Co.
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National Supply Co.
National Tube Co.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
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Hills-McCanna Co.

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Ohio Steel Foundry Co.
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American Car & Foundry Co.
Cunningham Co.
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Newton Process Mfg. Co.

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Dayton Pipe Coupling Co.
Dresser, S. R. Mfg. Co.

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Twin Disc Clutch Co.

Cocks—Brass and Iron—
Lunkenheimer Co.
Walworth Mfg. Co.

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Smith Separator Co.

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Clark Brothers Co.
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Gardner Governor Co.
Sullivan Machinery Co.
Worthington Pump & Machinery Corp.

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Carbondale Machine Co.
Cooper, C. & G. Co.

Compressors — Direct Connected Motor and Gas Engine Driven
Buffalo Gasolene Motor Co.
Clark Brothers Co.
Cooper, C. & G. Co.
Miller Improved Gas Engine Co.

Compressors—Direct Driven Air and Gas—
Bessemer Gas Engine Co.
Miller Improved Gas Engine Co.

Compressors—Gas—
Bessemer Gas Engine Co.
Chicago Pneumatic Tool Co.
Clark Brothers Co.
Cooper, C. & G. Co.
Hope Engineering & Supply Co.
Ingersoll-Rand Co.
National Transit Pump & Machine Co.

Compressors—Portable—
Ingersoll-Rand Co.

Condenser Boxes—
Kaw Boiler Works Co.
Petroleum Iron Works Co.

Condensers—
Southwestern Engineering Co. Inc.
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Controllers—Liquid Level—
Fisher Governor Co., Inc.
Newton Process Mfg. Co.
Smith Separator Co.

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Smith Separator Co.

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Brown Instrument Co.
Foxboro Co., Inc.
Tagliabue, C. J., Mfg. Co.
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Braun, C. F. & Co.

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Bridgeport Machine Co.
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Dayton Pipe Coupling Co.
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Harrisburg Pipe & Pipe Bending Co.
Superior Tube Co.

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Universal Oil Products Co.

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Full-Crawler Co.

Crown Blocks—
International Derrick & Equipment Co.
Lucey Mfg. Corp.
Lufkin Foundry & Machine Co.
Moore, Lee C. & Co., Inc.
Parkersburg Rig & Reel Co.
Slater Brothers Turnbuckle Derrick Co.

Cups—Leather—
Auer, C. A.

Cutters—Pipe—
Borden Co.
Nye Tool & Machine Works
Trimont Mfg. Co.

Cylinders—Compressor—
Hope Engineering & Supply Co.

Cylinder Stocks—
Barnsdall Refining Co.
Pure Oil Co.
The Texas Co.

D

Dehydrating Process—
Barnickel, Wm. S. & Co.

Demulsifying Agents—
Newton Process Mfg. Co.

Depletion Reports—
American Appraisal Co.

Derricks—Steel
Emsco Derrick & Equip. Co.
International Derrick & Equipment Co.
Marion Mch., Fdy. & Supply Co.
Moore, Lee C. & Co., Inc.
O'Brien Steel Construction Co.
Parkersburg Rig & Reel Co.
Slater Bros. Turnbuckle Derrick Co.
Superior Tube Co.

Derricks—Turnbuckle—
National Turnbuckle Derrick Co.
Slater Bros. Turnbuckle Derrick Co.

Diamond Core Drills (See Core Drills—Diamond)—

Diamonds for Core Drilling—
Diamond Drill Carbon Co.
Patrick, R. S.

Die Heads—Automatic Screw Cutting—
Landis Machine Co.

Die Heads—Bolt Threading—
Bignall & Keeler Machine Works.
Landis Machine Co.

Die Heads — Stationary Pipe Threading—
Bignall & Keeler Machine Works.
Cox & Sons Co., The
Landis Machine Co.
Standard Engineering Co.

Diesel Engines (See Engines)—

Dies—Pipe Threading—
Bignall & Keeler Machine Works.
Borden Co.
Cox & Sons Co., The
Landis Machine Co.
Nye Tool & Machine Works.
Standard Engineering Co.

Differential Pressure Recorders (See Recorders)—

Direct Driven Pumps (See Pumps)

Disc Bits (See Bits—Disc)—

Dissolved Acetylene (See Acetylene)—

Distillate—
Acme Petroleum Co.

Ditchers—Pipe Line—
Barber-Greene Co.
Buckeye Traction Ditcher Co.

Draw Works—
Lucey Mfg. Corp.
Lufkin Foundry & Machine Co.
National Supply Co.
Titusville Iron Works Co.

Drillers Hose (See Hose)—

Drilling and Fishing Tools—
Acme Fishing Tool Co.
Baash-Ross Tool Co.
Bovaird & Seyfang Mfg. Co.
Bovaird Supply Co.
Bridgeport Machine Co.
Burns Tool Co.
Continental Supply Co.
Hinderliter Tool Co.
Hughes Tool Co.
International Supply Co.
Larkin & Co.
Leidecker Tool Co.
Lucey Mfg. Corp.
Oil Well Supply Co.
Reed Roller Bit Co.
Regan Forge & Engineering Co.
Spang & Co
Star Drilling Machine Co.
U. S. Tool Co.

Drilling Engines (See Engines)—

Drilling Equipment—
Clark Brothers Co.
Hughes Tool Co.
O'Brien Steel Construction Co.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.
Reed Roller Bit Co.
Star Drilling Machine Co.

Drilling Gate Valves (See Valves)

Drilling Machines—
Leidecker Tool Co.
Oil Well Supply Co.
Star Drilling Machine Co.

Drilling Tools (See Drilling and Fishing Tools)—

Drilling Valves (See Valves)—

Drills—Portable Air—
Chicago Pneumatic Tool Co.

Drills—Portable Electric—
Chicago Pneumatic Tool Co.

Drive Shoes—
Bartlesville Supply Co.
Larkin & Co.

Drop-Forged Wrenches (See Wrenches)—

Drops and Seats—
Norris Brothers, Inc.

Drums (See Barrels)—

Dynamos—
Westinghouse Electric & Mfg. Co.

E

Electrical Equipment—
Fairbanks-Morse & Co.
Pyle National Co.
Wico Electric Co.

Electric Apparatus (See Apparatus—Electric)—

Electric Drilling Equipment—
Lucey Mfg. Corp.
Westinghouse Electric & Mfg. Co.

Electric Pumping and Pulling Motors (See Pumping and Pulling Motors—Electric)—

Electric Steel Castings — (See Castings—Electric Steel)—

Elevators—Casing and Tubing—
Bovaird Supply Co.
Bridgeport Machine Co.
Dunn Mfg. Co.
Lucey Mfg. Corp.
Oil Well Supply Co.
Wilson Oil Tools Corp.

Elevators—Rod—
Dunn Mfg. Co.
Foggan, Geo. N.

Enamels—
Sherwin-Williams Co.

Engineers—Consulting and Contracting—
Hope Engineering & Supply Co.
Kellogg, M. W. Co.
Power Specialty Co.
Westcott & Greis.

Engineers—Fire Protection—
Foamite-Childs Corp.
Engineers—Oil Buildings—
Austin Co.
International Derrick & Equipment Co.
Engineers—Oil Treating—
Barnickel, Wm. S. & Co.
Engines—Crude Oil—
Western Machinery Co.
Engines—Diesel—
Bessemer Gas Engine Co.
Busch-Sulzer Bros. Diesel Engine Co.
Foos Gas Engine Co.
McIntosh & Seymour Corp.
Western Machinery Co.
Worthington Pump & Machinery Corp.
Engines—Drilling—
Ajax Iron Works.
Beaver Manufacturing Co.
Bessemer Gas Engine Co.
Bovaird & Seyfang Mfg. Co.
Buda Co.
Buffalo Gasolene Motor Co.
Clark Brothers Co.
Continental Supply Co.
Franklin Valveless Engine Co.
Hercules Motor Corp.
Lufkin Foundry & Machine Co.
Pattin Bros. Co.
Power Mfg. Co.
Republic Supply Co.
Titusville Iron Works Co.
Engines—Gas—
Bessemer Gas Engine Co.
Bruce-MacBeth Engine Co.
Buda Co.
Buffalo Gasolene Motor Co.
Chicago Pneumatic Tool Co.
Clark Brothers Co.
Cooper, C. & G. Co.
Foos Gas Engine Co.
Franklin Valveless Engine Co.
Frick-Reid Supply Co.
Hope Engineering & Supply Co.
Ingersoll-Rand Co.
International Supply Co.
Jones, S. M. Co.
Marion Mch., Fdy. & Supply Co.
Miller Improved Gas Engine Co.
National Supply Co.
National Transit Pump & Machine Co.
Oil Well Supply Co.
Pattin Bros. Co.
Reid, Joseph, Gas Engine Co.
Titusville Iron Works Co.
Waukesha Motor Co.
Western Machinery Co.
Engines—Gasoline—
Buda Co.
Buffalo Gasolene Motor Co.
Climax Engineering Corp.
Continental Motors Corp.
Fairbanks-Morse & Co.
International Harvester Co. of America.
Novo Engine Co.
Waukesha Motor Co.
Western Machinery Co.
Engines—Oil—
Bessemer Gas Engine Co.
De La Vergne Machine Co.
Fairbanks Morse & Co.
Franklin Valveless Engine Co.
International Harvester Co. of America.
McIntosh & Seymour Corp.
National Supply Co.
Oil Well Supply Co.
Reid, Joseph, Gas Engine Co.
Western Machinery Co.
Engines—Rotary Steam—
Baker Motors, Inc.
Engines—Semi-Diesel, Oil—
Chicago Pneumatic Tool Co.
Power Mfg. Co.
Engines—Steam—
Ajax Iron Works.
Baker Motors, Inc.
Frick-Reid Supply Co.
Lucey Mfg. Corp.
National Supply Co.
Oil Well Supply Co.
Evaporators—
Newton Process Mfg. Co.
Expansion Pistons (See Pistons)—
Extinguishers—Fire—
Amdyco Corp.
Foamite-Childs Corp.

F

Fabricators for Gasoline Plants and Refineries—
Stearns-Roger Mfg. Co.
Fence—Chain Link—
Page Fence & Wire Products Association.
Filters—
Metric Metal Works.
Filters—Oil—
Burt Mfg. Co.
Fire Extinguishers (See Extinguishers)—
Fishing Tools (See Drilling and Fishing Tools)—
Fish Tail Bits (See Bits)—
Fittings—Dropped Forged Steel—
Carbondale Machine Co.
Vogt, Henry, Machine Co.
Fittings—Malleable & Cast Iron—
Bovaird Supply Co.
Crane Co.
Frick-Reid Supply Co.
Kelly & Jones Co.
Walworth Mfg. Co.
Fittings—Pipe—
American Cast Iron Pipe Co.
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.
Gaso Pump & Burner Mfg. Co.
Jarecki Mfg. Co.
Kellogg, M. W., Co.
Kennedy Valve Mfg. Co.
Lufkin Foundry & Machine Co.
Metric Metal Works.
Oil Well Supply Co.
Reading Steel Casting Co.
Republic Supply Co.
United Iron Works, Inc.
Fittings—Steel—
Dayton Pipe Coupling Co.
Kelly & Jones Co.
Ohio Steel Foundry Co.
Pittsburgh Reinforced Brazing & Machine Co.
Flanges—Brass, Iron and Steel—
Kelly & Jones Co.
Metric Metal Works.
Flange Unions—
Gaso Pump & Burner Mfg. Co.
Flashlights—
Delta Electric Co.
National Carbon Co.
Floating Roofs and Decks—
Chicago Bridge & Iron Works
Columbian Steel Tank Co.
Floodlights—
Pyle-National Co.
Floor Circle Braces (See Braces)
Force Feed Lubricators (See Lubricators)—
Forging Billets—
Andrews Steel Co.
Harrisburg Pipe & Pipe Bending Co.
Heppenstall Forge & Knife Co.
Forgings—
Champion Machine & Forging Co.
Milwaukee Forge & Machine Co.
Friction Clutch Pulleys (See Pulleys)—
Fuel Oil (See Oil—Fuel)—

G

Gas and Oil Gate Valves (See Valves)—
Gas Compressors (See Compressors—Gas)—
Gas Engines (See Engines—Gas)
Gas Holders—
Chicago Bridge & Iron Works.
Gaskets—
Garlock Packing Co.
McCord Radiator & Mfg. Co.
Gaskets—Fibre—
Durabla Mfg. Co.
Gas Masks & Safety Appliances—
Mine Safety Appliance Co.
Gas Meters (See Meters)—
Gas Oil (See Oil—Gas)—
Gasoline—
Berry's, James B. Sons Co.
Crown Central Petroleum Corp.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Sinclair Refining Co.
Skelly Oil Co.
Gasoline—Natural—
Chestnut & Smith Corp.
Gasoline Plant Equipment—
Bessemer Gas Engine Co.
Chicago Bridge & Iron Works
Clark Brothers Co.
Kellogg, M. W. Co.
Newton Process Mfg. Co.
Gas Regulator Casinghead—
Davis Regulator Co.
Gas Regulators—
Chaplin Fulton Mfg. Co.
Davis Regulator Co.
Fisher Governor Co.
Metric Metal Works.
Smith Separator Co.
Gas Scrubbers—
Newton Process Mfg. Co.
Gauge Glass—High Pressure—
Durabla Mfg. Co.
Gauge Poles—
Marsh Gauge Pole Co.
Gauges—Automatic Tank—
Oil Conservation Engineering Co.
Gauges—Pressure and Vacuum—
Bristol Co.
Metric Metal Works.
Gauges—Test—
Metric Metal Works.
Gear Driven Pumps (See Pumps)
Gears—Cut—
Nuatall, R. D., & Co.
Gears—Reduction—
Nuttall, R. D., & Co.
Generators—
Westinghouse Electric & Mfg. Co.
Generators—Acetylene—
Oxweld Acetylene Co.
Generators—Steam—
Baker Motors, Inc.
Generators—Turbine—
Moone Manufacturing Co.
Pyle-National Co.
Westinghouse Electric & Mfg. Co.
Glass Bottles (See Bottles, Glass)
Glassware—Chemical for Laboratory Use—
Illinois Glass Co.
Governors—
Gardner Governor Co.
Governors—Boiler Feed—
Chaplin-Fulton Mfg. Co.
Fisher Governor Co.
Grey Iron Castings (See Castings)

H

Hammers—Chipping and Calking Pneumatic—
Chicago Pneumatic Tool Co.
Hammers—Riveting Pneumatic—
Chicago Pneumatic Tool Co.
Hangers—Iron and Steel—
Dodge Mfg. Corp.
Hatches—Gauge and Thief—
Oil Conservation Engineering Co.
Heat Exchangers—
Carbondale Machine Co.
Griscom-Russell Co.
Hope Engineering & Supply Co.
Newton Process Mfg. Co.
Southwestern Engineering Co., Inc.
Southwestern Engnieering Corp.
Heat Interchanges—Fluid—
Braun, C. F. & Co.
High Pressure Gate Valves (See Valves)—
Hoists—Pneumatic, Geared and Universal—
Chicago Pneumatic Tool Co.
Yale & Towne Mfg. Co.
Hoists—Portable—
Wright Mfg. Co.
Yale & Towne Mfg. Co.
Hoists—Well Pulling—
Emsco Derrick & Equip. Co.
Hooks for Rods and Tubing—
Dunn Mfg. Co.
Hose—
Fenwick-Reddaway Mfg. Co.
Hose—Drillers—
Goodrich, B. F. Rubber Co.
Hose—Oil Suction and Discharge
Goodrich, B. F. Rubber Co.
Hose—Rubber—
Goodyear Tire & Rubber Co.
United States Rubber Co.
Hot Rolled Strip Steel (See Steel)
Hydraulic Gate Valves (See Valves)—
Hydraulic Jacks (See Jacks)—

I

Insulation Materials—
Celite Products Co.
Johns-Manville, Inc.
Insurance—Fire—
Oil Insurance Association.
Insurance—Tornado—
Oil Insurance Association.
Iron Ingot—
American Rolling Mill Co.

J

Jacks—Hydraulic—
Bridgeport Machine Co.
Jacks—Lifting—
Templeton, Kenly & Co., Ltd.
Jacks—Pumping—
American Wells Works.
Bessemer Gas Engine Co.
Braden Co.
Frick-Reid Supply Co.
Jones S. M., Co.
Kansas City Hay Press Co.
Spang & Co.
Jars—
Bridgeport Machine Co.
Spang & Co.
Jar Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

K

Kerosene—
Acme Petroleum Co.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Skelly Oil Co.

L

Lacquers—
Sherwin-Williams Co.
Lanterns—Electric—
Delta Electric Co.
Lanterns—Hand—
Delta Electric Co.
Lead and Mixed Metal Products—
Eagle-Picher Lead Co.
Lead in Oil—
Eagle-Picher Lead Co.
National Lead Co.
Lead Wool and Containers—
Eagle-Picher Lead Co.
Lifting Jacks (See Jacks)—
Lighting Equipment—
Climax Engineering Co.
Pyle National Co.
Westinghouse Electric & Mfg. Co.
Liquid Level Controls (See Controllers)—
Litharge—
Eagle-Picher Lead Co.
National Lead Co.
Loaders—Trucks—
Barber-Greene Co.
Long Distance Telephone—
American Telephone & Telegraph Co.
Lubricating Devices—
McCord Radiator & Mfg. Co.
Lubricating Oils (See Oils)—
Lubricators—
Ajax Iron Works.
Lunkenheimer Co.
Lubricators—Force Feed—
Manzel Brothers Co.
McCord Radiator & Mfg. Co.

M

Machine Tools—
Ryerson, Jos. T., & Sons, Inc.
Manholes—Tank—
Oil Conservation Engineering Co.
Manifolds—
Reid, Joseph, Gas Engine Co.
Metal Buildings Sectional (All Types (See Buildings)—
Meters—Gas—
Foxboro Co., Inc.
Metric Metal Works.
Pittsburgh Meter Co.
Roots, P. H. & F. M. Co.
Westcott and Greis.
Meters—Gasoline—
Pittsburgh Meter Co.
Meters—Oil—
Pittsburgh Meter Co.
Molded Goods—Rubber—
Goodyear Tire & Rubber Co.
Motor Controlled Apparatus (See Apparatus—Motor Control)—
Motors—Electric—
Fairbanks Morse & Co.
Westinghouse Electric & Mfg. Co.
Motors—Gasoline (See Engines—Gasoline)—
Motor Trucks (See Trucks—Motor)—

N

Naphtha—
Pure Oil Co.
Natural Gasoline (See Gasoline—Natural)—
Natural Gasoline Plant Equipment
American Tank Co.
Campbell, J. A.
Chaplin-Fulton Mfg. Co.
Continental Supply Co.
Cooper, C. & G., Co.
Griscom-Russell Co.
Roots, P. H. & F. M., Co.
Smith Separator Co.
Westcott & Greis.
Nitrogen—
Linde Air Products Co.

O

Oil and Gas Pipe Line Construction—
Hope Engineering & Supply Co.
Oil Burners (See Burners—Oil)—
Oil Engines, Semi-Diesel (See Engines—Semi-Diesel Oil)—
Oil Field Equipment—
Baash-Ross Tool Co.
Bakar Casing Shoe Co.
Bridgeport Machine Co.
Continental Supply Co.
Cunningham Co.
Gaso Pump & Burner Mfg. Co.
International Derrick & Equipment Co.
Iron King Mfg. Co.
Kaw Boiler Works Co.
National Supply Co.
Oil Well Supply Co.
Parkersburg Machine Co.
Parkersburg Rig & Reel Co.
Reed Roller Bit Co.
Regan Forge & Engineering Co.
Reid, Joseph, Gas Engine Co.
Republic Supply Co.
Trumble Gas Trap Co.
Oil Filters—(See Filters—Oil)—
Oil—Fuel—
Acme Petroleum Co.
Crown Central Petroleum Corp.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Sinclair Refining Co.
The Texas Co.
Oil—Gas—
Acme Petroleum Co.
Crown Central Petroleum Corp.
Gulf Refining Co.
Pure Oil Co.
Sinclair Refining Co.
The Texas Co.
Oil—Lubricating—
Barnsdall Refining Co.
Berry's, James B. Sons Co.
Crown Central Petroleum Corp.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pennzoil Co.
Pure Oil Co.
Sinclair Refining Co.
Skelly Oil Co.
The Texas Co.
Oil—Tractor—
Barnsdall Refining Co.
Gulf Refining Co.
Pennzoil Co.
Pure Oil Co.
Skelly Oil Co.
Oiling Devices—
Lunkenheimer Co.
Oil Meters (See Meters)—
Oil Piping Equipment (See Fittings)—
Oil Reclaiming Process—
Barnickel, Wm. S., & Co.
Houston Pump & Supply Co.
Oil Refinery Equipment (See Refinery Equipment)—
Oil Securities (See Securities)—
Oil Suction and Discharge Hose—(See Hose)—
Oil Testing Instruments—
Tagliabue, C. J., Mfg. Co.
Oil Well Cementing—
Halliburton, Erle P.
Oil Well Screens (See Screens)—
Oil Well Tools—
Hinderliter Tool Co.
Reed Roller Bit Co.
Star Drilling Machine Co.
Titusville Forge Co.
U. S. Tool Co.
Over Shots—
Reed Roller Bit Co.
Regan Forge & Engineering Co.
Oxygen—
Linde Air Products Co.

P

Packer Release—
Acme Fishing Tool Co.
Packers—
Goodyear Tire & Rubber Co.
Guiberson Corp.
Larkin & Co.
Layne & Bowler Co.
Oil Well Supply Co.
Regan Forge & Engineering Co.
Spang & Co.
Packing—
Crane Packing Co.
Durabla Mfg. Co.
Garlock Packing Co.
Goodrich, B. F., Rubber Co.
Imperial Belting Co.
Johns-Manville, Inc.
United States Rubber Co.
Packing—Metallic—
Crane Packing Co.
Paint Guns—
Binks Spray Equipment Co.
Paints—
Aluminium Co. of America.
American Asphalt Paint Co.
Continental Supply Co.
Cook Paint & Varnish Co.
Detroit Graphite Co.
Dixon, Joseph Crucible Co.
Eagle-Pincher Lead Co.
Sherwin-Williams Co.
Paraffin Wax Plant Equipment—
Carbondale Machine Co.
Pipe—Cast Iron—
American Cast Iron Pipe Co.
Continental Supply Co.
Greenspon's Jos., Sons Iron & Steel Co.
International Supply Co.
U. S. Cast Iron Pipe & Fdy. Co.
Pipe—Lead Chemical and Antimonial—
Eagle-Picher Lead Co.
Pipe—Steel—
Greenspon's Jos., Sons Iron & Steel Co.
Jarecki Mfg. Co.
Kellogg, M. W., Co.
National Supply Co.
National Tube Co.
Republic Iron & Steel Co.
Ryerson, Jos. T., & Son, Inc.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
Superior Tube Co.
Pipe—Wrought Iron—
Byers, A. M., Co.
Frick-Reid Supply Co.
Greenspon's, Jos., Sons Iron & Steel Co.
Oil Well Supply Co.
Reading Iron Co.
Superior Tube Co.
Pipe and Nipple Threading Machines—
Bignall & Keeler Machine Works.
Cox & Sons Co., The.
Landis Machine Co.
Ryerson, Jos. T., & Sons, Inc.
Standard Engineering Co.
Pipe Clamps (See Clamps—Pipe)
Pipe Fittings (See Fittings)—
Pipe Grips—
Larkin & Co.
Pipe Headers—
National Tube Co.
Newton Process Mfg Co.
Pipe Line Construction Tools—
National Transit Pump & Machine Co.
Pipe Line Ditchers (See Ditchers)
Pipe Line Equipment—
Gaso Pump & Burner Mfg. Co.
Pipe Screwing Machines—
Buckeye Traction Ditcher Co.
Pipe Suspension Device—
Stearns-Roger Mfg. Co.
Pipe Threading Dies (See Dies)—
Pipe Tools—
Armstrong Brothers Tool Co.
Nye Tool & Machine Works.
Piping—Fabricated—
Kelly & Jones Co.
Midwest Piping & Supply Co.
Piping—Steel & Iron—
Crane Co.
Greenspon's Jos., Sons Iron & Steel Co.
Power Piping Co.
Pistons—
Guiberson Corp.
Heppenstall Forge & Knife Co.
Pistons—Expansion—
Wilson Oil Tools Corp.
Pistons—Slush Pump—
Guiberson Corp.
Plain End Pipe Couplings (See Couplings—Plain End Pipe)—
Plugs—Bottom Water—
Guiberson Corp.
Polish Rods (See Rods—Polish)—
Portable Drilling Rigs (See Rigs)
Power Pumps (See Pumps)—
Power Units—Portable (See Engines)—
Pre-Heaters—
Newton Process Mfg. Co.
Pulleys—Wood, Iron and Steel—
Dodge Mfg. Corp.
Pulling Machines—
Iron King Mfg. Co.
National Supply Co.
Safety Pulling Machine Co.
Pumpers—Long Stroke—
Farley Machine Co.
Pumping and Pulling Motors—Electric—
Westinghouse Electric & Mfg Co.
Pumping Equipment—
American Well Works.
Axelson Machine Co.
Farley Machine Co.
Goulds Mfg. Co.
Jones, S. M., Co.
Myers, F. E., Bro. & Co.
Northrup Equipment Co.
Oil Well Supply Co.
Prescott Co.
Ralgan, J. P. Co.
Waukesha Motor Co.
Pumping Gear Units—
Nuttall, R. D., & Co.
Pumping Jacks (See Jacks)—
Pumping Powers—
Aldrich Pump Co.
Bessemer Gas Engine Co.
Buda Co.
Climax Engineering Co.
Frick-Reid Supply Co.
Jones, S. M., Co.
Kansas City Hay Press Co.
Marion Mch., Fdy. & Supply Co
National Supply Co.
Oil Well Supply Co.
Pattin Bros. Co.
Reid, Joseph, Gas Engine Co.
Spence Machine Co.
Titusville Iron Works Co.
Pumps—Air Lift—
Ingersoll-Rand Co.
Pumps—Boiler Feed—
Ajax Iron Works.
Fairbanks-Morse & Co.
Gardner Governor Co.
Oil Well Supply Co.
Worthington Pump & Machinery Corp.
Pumps—Centrifugal—
American Well Works
Dean Hill Pump Co.
Fairbanks-Morse & Co.
Worthington Pump & Machinery Corp.
Pumps—Direct Driven—
Aldrich Pump Co.
Bessemer Gas Engine Co.
Pumps—Electric—
Prescott Co.
Pumps—Filling Station—
Gilbert & Barker Mfg. Co.
Pumps—Fuel Oil Service—
Aldrich Pump Co.
Blackmer Pump Co.
Northern Fire Apparatus Co.
Pumps—Fuel Oil Transfer—
Aldrich Pump Co.
Pumps—Gear Driven—
Aldrich Pump Co.
Gaso Pump & Burner Mfg. Co.
Lucey Mfg. Corp.
Prescott Co.
Pumps—Pipe Line—
Aldrich Pump Co.
Frick-Reid Supply Co.
Gardner Governor Co.

Gaso Pump & Burner Mfg. Co.
National Transit Pump & Machine Co.
Prescott Co.
Worthington Pump & Machinery Corp.

Pumps—Power—
Aldrich Pump Co.
Dean Brothers Co.
Fairbanks-Morse & Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Myers, F. E. Bro. & Co.
National Transit Pump & Machine Co.
Novo Engine Co.
Prescott Co.
Waukesha Motor Co.
Worthington Pump & Machinery Corp.

Pumps—Refinery—
Aldrich Pump Co.
Dean Hill Pump Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Kinney Mfg. Co.
National Transit Pump & Machine Co.
Northern Fire Apparatus Co.
Worthington Pump & Machinery Corp.

Pumps—Rotary—
Blackmer Pump Co.
Northern Fire Apparatus Co.
Roots, P. H. & F. M. Co.

Pumps—Sand—
Bridgeport Machine Co.
Larkin & Co.

Pumps—Slush—
Gardner Governor Co.

Pumps—Steam—
Dean Brothers Co.
Fairbanks-Morse & Co.
Frick-Reid Supply Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Lucey Mfg. Corp.
National Transit Pump & Machine Co.
Oil Well Supply Co.
Prescott Co.
Vogt Brothers Mfg. Co.

Pumps—Suction—
Gaso Pump & Burner Mfg. Co.

Pumps—Vacuum—
Bessemer Gas Engine Co.
Clark Brothers Co.
Gaso Pump & Burner Mfg. Co.
Miller Improved Gas Engine Co.
Roots, P. H. & F. M., Co.
Worthington Pump & Machinery Corp.

Pumps—Water—
Aldrich Pump Co.
American Well Works.
Gaso Pump & Burner Mfg. Co.
Northern Fire Apparatus Co.
Prescott Co.

Purifiers—Oil Absorption—
Sharpless Specialty Co.

Pyrometers—
Brown Instrument Co.

R

Ratchet Pipe Cutters—
Toledo Pipe Threading Machine Co.

Ratchet Pipe Threaders—
Nye Tool & Machine Works.
Toledo Pipe Threading Machine Co.

Ratchet Reamers—
Nye Tool & Machine Works

Ratchet Stocks and Dies—
Nye Tool & Machine Works
Toledo Pipe Threading Machine Co.

Ratchet Wrenches (See Wrenches)

Receiving Boxes—
Reid, Joseph, Gas Engine Co.

Recorders—Differential Pressure—
Metric Metal Works

Refinery Equipment—
American Asphalt Paint Co.
American Radiator Co.
Braun, C. F. & Co.
Carbondale Machine Co.
Chicago Bridge & Iron Works
Graver Corp.
Griscom-Russell Co.
Kellogg, M. W. Co.
Newton Process Mfg. Co.
Petroleum Appliance Co.
Petroleum Iron Works Co.
Power Piping Co.
Power Specialty Co.
Reid, Joseph, Gas Engine Co.
Ross-Meehan Foundries.
Smith Separator Co.
Southwestern Engineering Co., Inc.
Southwestern Engineering Corp.
United Iron Works, Inc.
Universal Oil Products Co.
Vogt, Henry, Machine Co.
Walsh & Weidner Boiler Co.
Westcott & Greis

Refinery Pumps (See Pumps)—

Refractories—Furnace, Stills and Baffles—
Botfield Refractories Co.

Refrigerating Machinery—
Carbondale Machine Co.
Climax Engineering Co.
United Iron Works, Inc.
Vogt, Henry, Machine Co.

Regulators—
Chaplin-Fulton Mfg. Co.
Fisher Governor Co., Inc.
Oil Conservation Engineering Co.
Smith Separator Co.

Rental Service—
Bridgeport Machine Co.

Reversible Clutches—
Bessemer Gas Engine Co.

Rig Irons—
International Supply Co.
Lucey Mfg. Corp.
National Supply Co.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.

Rigs—Drilling, All Steel—
Emsco Derrick & Equip. Co.
International Derrick & Equipment Co.
Moore, Lee C., & Co., Inc.

Rigs—Portable Drilling—
National Supply Co.
National Turnbuckle Derrick Co.
Star Drilling Machine Co.

River Clamps (See Clamps)—

Rods—Polish—
Jones, S. M., Co.

Rods—Pull—
Axelson Machine Co.
Columbus Sucker Rod Co.
Jones, S. M. Co.
Sheffield Steel Corp.

Rods—Sucker—
Axelson Machine Co.
Columbus Sucker Rod Co.
D. & B. Pump & Supply Co.
Frick-Reid Supply Co.
Jones, S. M., Co.
National Supply Co.
Oil Well Supply Co.
Republic Supply Co.
Sheffield Steel Corp.

Rods—Valve—
Jones, S. M., Co.

Roofing—
Johns-Manville, Inc.

Roofing—Tin Plates (See Tin Plates—Roofing)—

Rope Socket Metal—
Eagle-Picher Lead Co.

Rope—Manila—
Ajax Rope Co., Inc.
Bovaird Supply Co.
Republic Supply Co.
Wall Rope Works, Inc.

Rope—Wire—
Ajax Rope Co., Inc.
American Cable Co.
Bovaird Supply Co.
Bridgeport Machine Co.
Broderick & Bascom Rope Co.
International Supply Co.
Jarecki Mfg. Co.
Leschen, A. & Sons, Rope Co.
Wickwire-Spencer Steel Corp.

Rotary Bit Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Rotary Disc Bits (See Bits)—

Rotary Drilling Equipment—
Climax Engineering Co.
Continental Supply Co.
Frick-Reid Supply Co.
International Derrick & Equipment Co.
Link-Belt Co.
Lucey Mfg. Corp.
Lufkin Foundry & Machine Co.
National Supply Co.
Oil Well Supply Co.
Republic Supply Co.
Titusville Iron Works Co.

Rotary Drive Bushings (See Bushings—Rotary Drive)—

Rotary Lines (See Rope—Wire)—

Rotary Post—
Reed Roller Bit Co.

Rotary Rock Bits (See Bits)—

Rotary Tool Joints—
Bartlesville Supply Co.
Hughes Tool Co.

Rotary Ventilators (See Ventilators)—

Rubber Belting (See Belting)—

Rubber Hose (See Hose)—

Run Down Tanks (See Tanks)—

Rust Preventatives—
Dearborn Chemical Co.
Eagle-Picher Lead Co.

S

Sand Lines—Manila—
Ajax Rope Co., Inc.

Sand Lines—Wire—
Ajax Rope Co., Inc.
Broderick & Bascom Rope Co.
Wickwire-Spencer Steel Corp.

Sand Pumps (See Pumps, Sand)

Screens—Oil Well—
Layne & Bowler Co.

Screens—Water Well—
Layne & Bowler Co.

Screws—Temper—
Burns Tool Co.

Seamless Steel Couplings — (See Couplings Seamless Steel)—

Securities—Oil—
Pforzheimer, Carl H., & Co.

Separators—Centrifugal—
Miller, Max B., & Co.
Sharpless Specialty Co.

Separators—Gas and Oil—
American Tank Co.
Smith Separator Co.

Sheet Lead—Chemical and Antimonial—
Eagle-Picher Lead Co.

Sheets—Corrugated, Black and Galvanized—
American Sheet & Tin Plate Co.
Ryerson, Jos. T., & Son., Inc.

Sheets—Steel—
American Sheet & Tin Plate Co.
Republic Iron & Steel Co.
Sheffield Steel Corp.

Sleeves—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.

Sleeves—Split—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.

Slush Pump Pistons (See Pistons)—

Slush Pumps—(See Pumps)—

Smoke Stacks—
Donovan Boiler Works

Sockets—
Acme Fishing Tool Co.
Bridgeport Machine Co.
Spang & Co.

Sockets—Wire Rope—
Chicago Steel Foundry Co.

Solders—Bar and Wire—
Eagle-Picher Lead Co.

Spark Plugs—
Mosler Metal Products Corp.

Spears—
Acme Fishing Tool Co.

Special Steel (See Steel Special)—

Split Sleeves (See Sleeves)—

Sprockets—Power Transmission—
Ajax Iron Works
Chain Belt Co.

Stands—Vice—
Nye Tool & Machine Works

Stationary Pipe Threading Die Heads (See Die Heads)—

Steam Pumps—(See Pumps)—

Steel—All Kinds—
Ryerson, Jos. T., & Son, Inc.

Steel—Alloy—
Central Steel Co.
Timken Roller Bearing Co.

Steel—Bit—
Central Steel Co.

Steel—Hot Rolled Strip—
Central Steel Co.

Steel—Special—
Central Steel Co.

Steel Band Wheels (See Band Wheels—Steel)—

Steel Bridges—(See Bridges)—

Steel Bull Wheels—(See Bull Wheels—Steel)—

Steel Castings (See Castings)—

Steel Couplings for Casing, Line Pipe, Drill Pipe and Tubing (See Couplings)—

Steel Crown Blocks (See Crown Blocks)—

Steel Derricks—(See Derricks)—

Steel Fabricators—Structural—
Austin Co.
Braden Co.
Graver Corp.
International Derrick & Equipment Co.

Steel Fittings (See Fittings)—

Steel Pitmans—
International Derrick & Equipment Co.
Moore, Lee C., & Co., Inc.
Slater Brothers Turnbuckle Derrick Co.

Steel Plate Construction—
Chicago Bridge & Iron Works
Graver Corp.
Kaw Boiler Works Co.
Petroleum Iron Works Co.
Tulsa Boiler & Machinery Co.
Vogt, Henry, Machine Co.

Steel Sheets (See Sheets, Steel)—

Steel Valves (See Valves—Steel)—

Steel Walking Beams (See Walking Beams—Steel)—

Steel Wheels and Tug Rims—
Emsco Derrick & Equip. Co.
International Derrick & Equipment Co.

Stills—
Chicago Bridge & Iron Works
Graver Corp.
Kaw Boiler Works Co.
Kellogg, M. W., Co.
Newton Process Mfg. Co.
Petroleum Iron Works Co.
Vogt, Henry, Machine Co.

Stocks & Dies—
Nye Tool & Machine Works
Toledo Pipe Threading Machine Co.

Structural Steel Fabricators (See Steel Fabricators)—

Stuffing Boxes—
Axelson Machine Co.
Kansas City Hay Press Co.

Sucker Rods (See Rods—Sucker)

Suction Pumps (See Pumps)—

Sulphuric Acid—
Eagle-Picher Lead Co.

Swab Rubbers—
United States Rubber Co.

Swabs—
Guiberson Corp.
Hoffman Mfg. Co.
Saunders Bros.

Swedge Nipples—
Dresser, S. R., Mfg. Co.
Harrisburg Pipe & Pipe Bending Co.

Swing Joints—
Oil Conservation Engineering Co.

Swivels—
Layne & Bowler Co.
Lucey Mfg. Corp.
Titusville Iron Works Co.

T

Tank Cars (See Cars—Tanks)—

Tank Cars Leased (See Cars)—

Tank Equipment—
Oil Conservation Engineering Co.

Tanks—Bolted—
American Tank Co.
Butler Mfg. Co.
Gantz Tank Co.
Maloney Tank Mfg. Co.
Parkersburg Rig & Reel Co.

Tanks—Bulk Station—
Columbian Steel Tank Co.
Graver Corp.

Tanks—Cylindrical—
Petroleum Iron Works Co.

Tanks—Elevated Steel—
Chicago Bridge & Iron Works

Tanks—Field Storage—
American Car & Foundry Co.
American Tank Co.
Donovan Boiler Works
Graver Corp.
Kaw Boiler Works
Kewanee Boiler Co.
Maloney Tank Mfg. Co.
Petroleum Iron Works Co.
Pittsburgh-Des Moines Steel Co.
Ritter-Conley Co.
Tulsa Boiler & Machinery Co.
United Iron Works, Inc.

Tanks—Horizontal Storage—
Columbian Steel Tank Co.
Graver Corp.
Kaw Boiler Works Co.
Maloney Tank Mfg. Co.

Tanks—Run Down—
Donovan Boiler Works
Graver Corp.
Kaw Boiler Works Co.
Newton Process Mfg. Co.

Tanks—Truck—
American Tank Co.
Butler Mfg. Co.
Columbian Steel Tank Co.
White Co.

Tanks—Underground—
Butler Mfg. Co.
Columbian Steel Tank Co.
Graver Corp.
Kewanee Boiler Co.
Pittsburgh-Des Moines Steel Co.
Tulsa Boiler & Machinery Co.

Tanks—Welded—
American Tank Co.
Chicago Bridge & Iron Works
Gantz Tank Co.

Taper Taps—
Hughes Tool Co.

Tapes—Measuring for Oil Gauging—
Lufkin Rule Co.

Temperature Controllers (See Controllers—Temperature)—

Temper Screws (See Screws)—

Thermometers—Indicating and Recording—
American Schaeffer & Budenberg Corp.
Bristol Co.
Tagliabue, C. J., Mfg. Co.
Taylor Instrument Co.

Threading Machines—
Bignall & Keeler Machine Wks.
Cox & Sons Co., The
Landis Machine Co.

Thread Protectors—
Spang & Co.

Tin Plates—Bright—
American Sheet & Tin Plate Co.

Tin Plates—Roofing—
American Sheet & Tin Plate Co.

Tires—Automobile—
Continental Supply Co.

Tongs—
Bridgeport Machine Co.
Wilson Oil Tools Corp.

Tongs—Back Up—
Williams, J. H., & Co.

Tongs—Break Out—
Reed Roller Bit Co.
Williams, J. H., & Co.

Tongs—Casing—
Dunn Mfg. Co.
Guiberson Corp.

Tongs—Chain Pipe—
Williams, J. H., & Co.

Tongs—Pipe—
National Transit Pump & Machine Co.

Tongs—Rotary—
Dunn Mfg. Co.

Tongs—Tool Joint—
Guiberson Corp.
Hughes Tool Co.
Reed Roller Bit Co.

Tongs—Tubing—
Dunn Mfg. Co.

Tool Chests—Pipe—
Nye Tool & Machine Works

Tool Joints—
Bridgeport Machine Co.
Federal Supply Co.
Hughes Tool Co.
Lucey Mfg. Corp.
Oil Well Supply Co.
Regan Forge & Engineering Co.

Tool Joint Tongs (See Tongs)—

Tools—Fishing and Drilling (See Drilling and Fishing Tools)—

Tools—Oil Well Drilling (See Drilling and Fishing Tools)—

Torches—
Oxweld Acetylene Co.

Tractor Oil (See Oil—Tractor)—

Tractors—
International Harvester Co. of America
Rock Island Plow Co.

Transmission Belt—Rubber—
Goodrich, B. F. Rubber Co.

Transmission Lines—
Stanley Belting Corp.

Traveling Block—
Lucey Mfg. Corp.
Regan Forge & Engineering Co.
Wright Mfg. Co.

Trenchers—Vertical Boom—
Barber-Greene Co.

Trucks—Motor—
Ford Motor Co.
General Motors Truck Co.
International Harvester Co. of America.
White Co.

Truck Tanks (See Tanks)—

Truck Tires (See Tires—Truck)—

Tubes—Boiler, Charcoal Iron—
Byers, A. M., Co.
Reading Iron Co.

Tubes—Boiler Steel—
National Tube Co.
Ryerson, Jos. T., & Son, Inc.

Tubing—
Byers, A. M., Co.
National Tube Co.
Reading Iron Co.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
Superior Tube Co.

Tubing Catchers—
Dunn Mfg. Co.
Guiberson Corp.

Tubing Elevators (See Elevators, Casing and Tubing)—

Tubular Goods—
Oil Well Supply Co.
Republic Iron & Steel Co.
Spang, Chalfant & Co., Inc.

Tubular Goods—Wrought Iron—
Byers, A. M., Co.
Reading Iron Co.

Turbines for Lighting Equipment
Lucey Mfg. Corp.
Westinghouse Electric & Mfg. Co.

Turbine Generators (See Generators—Turbine)—

Turnbuckle Derricks (See Derricks)—

U

Underground Tanks (See Tanks)—

Underreamer Bit Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Underreamer Cutter Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Underreamers—
Bridgeport Machine Co.
Guiberson Corp.
Wilson Oil Tools Corp.

Unions—
Continental Supply Co.
Kelly & Jones Co.

V

Vacuum Pumps (See Pumps)—

Valuations—
American Appraisal Co.

Valves—Blow-off—
Homestead Valve Mfg. Co.

Valves—Brass and Bronze—
Homestead Valve Mfg. Co.
Kelly & Jones Co.
Lunkenheimer Co.
Reading Steel Casting Co.
Walworth Mfg. Co.

Valves—Cast Steel—
Chapman Valve Mfg. Co.
Homestead Valve Mfg. Co.

Valves—Check—
Gaso Pump & Burner Mfg. Co.
Lunkenheimer Co.

Valves—Drop Forged Steel—
Edward Valve & Mfg. Co.
Vogt, Henry, Machine Co.

Valves—Gate—High and Low Pressure—
Chapman Valve Mfg. Co.
Continental Supply Co.
Crane Co.
Darling Valve & Mfg. Co.
Kelly & Jones Co.
Kennedy Valve Mfg. Co.
Ludlow Valve Mfg. Co.
Lunkenheimer Co.
Pittsburgh Reinforced Brazing & Machine Co.
Powell, Wm., Co.

Valves—Iron—
Chapman Valve Mfg. Co.
Lunkenheimer Co.
Reading Steel Casting Co.

Valves—Metal Pump—
Durabla Mfg. Co.

Valves—Relief—Supersensitive—
Davis Regulator Co.

Valves—Steel—
Chapman Valve Mfg. Co.
Edward Valve & Mfg. Co.
Kelly & Jones Co.
Lunkenheimer Co.
Metric Metal Works
Pittsburgh Reinforced Brazing & Machine Co.
Powell, Wm., Co.
Reading Steel Casting Co.

Valves—Tank Vent—
Oil Conservation Engineering Co.

Valves—Working Barrel—
Atlas Ball Co.
Axelson Machine Co.
Hough, Charles N., Mfg. Co.
Northrup Equipment Co.
Oil Well Supply Co.

Varnishes—
Sherwin-Williams Co.

Ventilators—Rotary—
Swartwout Co.

Vises—Bench—
Nye Tool & Machine Works

Vises—Pipe—
Nye Tool & Machine Works

Vises—Post—
Nye Tool & Machine Works

W

Wagons—Truss Wheel—
Athey Truss Wheel Co.

Walking Beams—Steel—
Moore, Lee C., & Co., Inc.

Water Gauge Cocks (See Cocks)—

Water Pumps (See Pumps)—

Water Softeners and Filters—
Graver Corp.

Water Well Screens (See Screens)

Wax—
Barnsdall Refining Co.
Gulf Refining Co.
Pure Oil Co.

Weight Indicators—
Hughes Tool Co.

Welded Tanks (See Tanks)—

Welding Accessories—Electric—
Wilson Welder & Metals Co.

Welding and Cutting Apparatus—
Oxweld Acetylene Co.

Welding Machines—Electric—
Wilson Welder & Metals Co.

Welding Supplies—
Oxweld Acetylene Co.

Welding Wire—
Frick-Reid Supply Co.
Oxweld Acetylene Co.
Page Fence & Wire Products Association
Wilson Welder & Metals Co.

Well Drilling and Fishing Tools—(See Drilling and Fishing Tools)—

Well Drilling Equipment (See Drilling Equipment)—

Well Shooting—
Eastern Torpedo Co.
Zero Hour Torpedo Co.

Wheels—Pipe Cutter—
Nye Tool & Machine Works

Wheels—Steel Automotive—
Budd Wheel Co.

Winches—
Braden Co.
Oil Conservation Engineering Co.

Wire Lines (See Cables—Steel)—

Wire Rope (See Rope—Wire)—

Wood Patterns and Models—
Gaso Pump & Burner Mfg. Co.

Working Barrels—
Axelson Machine Co.
D. & B. Pump & Supply Co.
Franklin Valveless Engine Co.
Frick-Reid Supply Co.
Hough, Charles N., Mfg. Co.
McGregor Working Barrel Co.
Northrup Equipment Co.
Oil Well Supply Co.

Working Barrel Valves (See Valves—Working Barrel)—

Wrenches—Closet Spuds—
Nye Tool & Machine Works

Wrenches—Drop Forged—
Williams, J. H., & Co.

Wrenches—Pipe—
Trimont Mfg. Co.
Walworth Mfg. Co.

Wrenches—Ratchet—
Dresser, S. R., Mfg. Co.
Nye Tool & Machine Works

Z

Zinc Oxide—
Eagle-Picher Lead Co.

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Statement for November

Runs

	Month	Daily Av.
*Prairie Pipe Line Co.	4,080,000	136,000
Gulf Pipe Line Co.	919,468	30,649
Texas Pipe Line Co.	630,558	21,018
Magnolia Pet. Co.	970,726	32,358
Empire Pipe Line Co.	708,577	23,619
Cosden Pipe Line Co.	710,472	23,682
*Sinclair Pipe Line Co.	1,557,000	51,900
*Other lines	8,220,000	274,000
Total November	17,796,801	593,226
Total October	18,416,882	594,092
Difference	620,081	866

Shipments

	Month	Daily Av.
†Prairie Pipe Line Co.	3,850,769	128,359
Gulf Pipe Line Co.	1,137,662	37,922
Texas Pipe Line Co.	819,001	27,300
Magnolia Pet. Co.	1,303,126	43,438
Empire Pipe Line Co.	826,967	27,566
Cosden Pipe Line Co.	741,340	24,711
†Sinclair Pipe Line Co.	2,372,425	79,080
*Other lines	8,520,000	284,000
Total Nov.	19,571,290	652,376
Total October	20,611,139	664,892
Difference	1,039,849	12,516

Stocks

*Prairie Oil & Gas Co.	27,400,000
*Prairie Pipe Line Co.	2,000,000
Gulf P. L. and Gypsy Oil Cos.	6,901,406
The Texas Co.	4,240,338
Magnolia Pet. Co.	6,327,257
Empire Pipe Line Co.	3,207,187
Cosden Pipe Line Co.	1,846,475
*Sinclair Crude Oil Purch. Co.	23,000,000
Carter Oil Co.	16,511,223
*Other lines	10,200,000
Total November	101,633,876
Total October	102,710,918
Difference	977,042

*Estimated. †Prairie shipments include Texas crude oil. Sinclair shipments include Texas and Wyoming crude oil.

Note: Stocks do not include 6,000,000 bbls. of crude oil held in storage on private tank farms and leases.

EASTERN PIPE LINES
Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for October and November:

	Oct. '25	Nov. '25
Nat. Transit	160,485.98	143,528.17
S. W. Pa. Pipe	88,614.81	79,602.57
Eureka P. L.	369,811.62	318,323.70
Buckeye P. L. (Macksburg)	303,780.86	279,058.92
Buckeye P. L. (Cleveland)	13,981.45	11,352.78
Buckeye P. L. (Lima, etc.)	127,521.41	111,577.13
Indiana P. L.	9,596.39	9,162.90
Cumberland P. L.	292,906.37	279,943.21
N. Y. Transit	20,573.89	16,926.71
Tidewater P. L.	150,134.69	138,009.65
Pure Oil Co.	182,452.25	167,921.44
Emery P. L.	48,956.63	47,005.83
Indian Ref.	86,547.46	77,169.86
Paragon Dev.	28,235.35	28,936.17
Pittsburgh P. L.	7,323.62	.....
Total	1,890,833.27	1,708,514.04
Daily average	60,994.62	59,350.47

Note — Indian Refining Co. also reported other receipts of 331,423.81 bbls. Paragon Refining Co. had other receipts of 130,150.20 bbls. Paragon Development had other receipts of 2,251.89 bbls. Pure Oil had other receipts of 57,348.55 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for October and November:

	Oct. '25	Nov. '25
Nat. Transit	397,576.55	372,376.37
S. W. Pa. Pipe	364,951.95	314,769.58
Eureka Pipe	135,027.77	148,352.61
Buckeye P. L. (Macksburg)	133,831.42	138,558.83
Buckeye P. L. (Cleveland)	969.15	971.65
Buckeye P. L. (Lima, etc.)	795,060.85	732,107.13
Indiana P. L.	995,708.07	963,608.00
Cumberland P. L.	157,874.91	161,755.20
Southern P. L.	651.00	.....
N. Y. Transit	466,894.84	432,743.87
Northern P. L.	73,874.32	87,808.44
Tidewater P. L.	176,398.69	83,545.87
Pure Oil Co.	244,061.70	195,068.59
Emery P. L.	48,308.05	49,512.02
Paragon Ref.	98,916.25	146,231.80
Indian Ref.	378,805.98	399,459.91
Paragon Dev.	32,046.70	30,598.39
Pittsburgh, P. L.	7,077.88	.....
Total	4,507,036.03	4,307,468.26
Daily average	145,388.26	143,582.27

Note—Paragon Development had other deliveries of 525.69 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of October and November were as follows:

	Oct. '25	Nov. '25
Nat. Transit	964,802.37	1,018,157.25
S. W. Pa. Pipe	721,496.86	724,911.17
Eureka P. L.	1,492,661.69	1,488,359.27
Buckeye P. L. (Macksburg)	244,229.22	212,926.26
Buckeye P. L. (Cleveland)	57,105.89	67,286.51
Buckeye P. L. (Lima, etc.)	3,509,002.32	3,637,920.88
Indiana P. L.	595,464.31	572,199.94
Cumberland P. L.	571,941.31	554,266.94
Southern P. L.	528,343.58	538,905.79
N. Y. Transit	812,350.18	754,325.86
Northern P. L.	735,413.58	629,014.13
Pure Oil Co.	355,376.69	382,570.80
Emery P. L.	26,957.36	23,303.97
Paragon Ref.	200,996.85	184,346.81
Indian Ref.	260,559.26	273,076.94
Paragon Dev.	5,428.40	5,986.04
Pittsburgh P. L.	4,720.44	.....
Total	11,086,850.31	11,068,157.65
Increase	305,097.25	*18,692.66

*Decrease.

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of October and November showing the gross stocks of the above fields:

	Oct. '25	Nov. '25
Pennsylvania	3,842,909.85	3,918,163.14
Lima	1,135,862.12	1,118,238.47
Kentucky	1,143,060.43	1,181,746.10
Mid-Continent	4,850,093.71	4,770,274.01
Illinois	114,924.20	79,735.93
Total	11,086,850.31	11,068,157.65

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1922	1923	1924	1925
January	67,702	75,790	62,638	56,831
February	75,096	71,092	68,023	60,606
March	78,531	76,592	68,721	60,575
April	75,462	75,614	71,058	63,062
May	77,592	77,365	63,942	59,217
June	76,193	77,593	63,250	61,720
July	76,435	71,879	64,208	62,639
August	79,387	76,910	59,942	59,686
September	78,512	72,358	62,930	62,510
October	77,209	76,259	64,976	60,995
November	75,313	70,762	56,282	59,350
December	73,351	69,271	55,814	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1922	1923	1924	1925
January	119,792	171,067	145,518	157,889
February	111,362	164,219	148,732	160,863
March	127,753	185,487	147,098	154,591
April	127,068	170,751	147,611	151,429
May	127,840	177,102	134,997	146,995
June	137,638	173,598	143,010	149,467
July	137,872	168,330	124,187	161,338
August	153,276	142,766	123,250	161,730
September	158,761	137,266	127,325	156,719
October	165,345	134,597	123,170	145,388
November	165,677	131,426	124,400	143,582
December	172,861	139,909	151,392	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields including oil received from other lines, at the close of each month for the past three years:

January	14,040,567	12,907,202	11,353,276
February	14,028,437	11,844,068	11,192,924
March	13,873,146	10,906,752	11,158,297
April	13,737,575	10,922,742	11,062,082
May	13,815,622	11,325,309	11,207,562
June	14,541,253	11,544,204	11,093,796
July	14,645,584	12,062,361	11,067,483
August	14,770,539	12,221,676	10,974,481
September	14,803,444	12,206,836	10,781,753
October	14,504,111	12,664,061	11,086,850
November	14,157,726	12,267,830	11,068,158
December	13,444,361	11,583,680	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1924—	Receipts	Shipmts.	Stocks
October	3,342.40	1,880.50	14,590.33
November	2,700 13	482.89	12,427.56
December	3,120.34	2,659.13	12,888.77
1925—			
January	1,730.86	1,681.15	12,938.48
February	2,702.05	4,564.70	11,075.83
March	3,177.21	2,354.30	11,898.74
April	3,040.41	1,780.11	13,159.04
May	2,814.99	5,719.90	10,254.13
June	3,052.75	1,221.83	12,085.05
July	2,639.34	3,174.10	11,550.29
August	3,216.97	1,577 99	13,189.27
September	2,928.99	5,352.05	10,767.21
October	2,869.75	1,499.34	12,157.62

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, December	2,004,202.01
Runs from wells	625,522.87
Other receipts	493,167.76
Regular deliveries	476,103.17
Other deliveries	584,027.32

The amount of Illinois oil run by the Tidewater Pipe Co. in November was 29,033.43 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1924—	Runs	Deliveries
November	650,147.62	521,459.21
December	640,919.23	595,942.23
1925—		
January	695,513.43	572,304.77
February	636,635.20	514,661.52
March	754,335.62	611,348.49
April	632,865.14	637,242.85
May	692,671.94	568,573.62
June	700,090.46	589,535.24
July	724,481.26	564,713.19
August	673,652.38	650,649.97
September	706,434.87	510,697.61
October	706,532.00	633,682.33
November	664,556.36	488,449.19

The Tidewater Pipe Co., Ltd., also delivered in November, 206,948.17 bbls. of Oklahoma oil. The total deliveries of all grades by the Tidewater were 391,840.06.

AVERAGE WEEKLY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

Average bbls. per week—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
August	25,515	68,432	223,097	35,000	92,806	444,850	.....	35,903	.....	4,067	39,970	484,820
September	17,269	25,931	212,100	86,569	89,600	441,469	.....	36,869	.....	.....	36,869	478,338
October	21,455	29,806	143,388	68,642	41,321	304,612	.....	.....	.....	.....	.....	304,612
November	50,869	68,131	103,131	93,331	66,269	381,731	.....	.....	36,400	5,831	42,231	423,962

AVERAGE WEEKLY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per week—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
August	70,455	62,097	326,515	107,933	175,224	742,224	147,224	228,291	18,515	29,358	423,388	1,165,612
September	70,700	41,531	289,331	61,600	194,531	657,693	115,500	168,469	27,800	14,700	326,469	984,162
October	149,709	94,836	275,933	44,030	160,755	725,291	175,000	207,736	12,752	20,321	416,812	1,142,103
November	136,969	30,331	331,100	70,910	241,731	811,041	91,231	191,569	54,369	43,400	380,569	1,191,610

GROSS PRODUCTION IN THE UNITED STATES FOR 12 MONTHS

1924—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountain	Eastern Fields	Total
December:	Month	18,795,126	16,031,185	11,264,915	2,537,443	3,380,511	1,870,876	2,302,888	3,000,850	59,183,794
	Daily average	606,294	517,135	363,384	81,853	109,049	60,351	74,287	96,402	1,909,155
1925—										
January:	Month	18,743,288	15,462,800	13,790,195	2,520,858	3,278,484	1,774,072	3,627,676	3,065,993	61,263,366
	Daily average	604,622	498,800	444,845	81,318	105,758	57,228	84,760	98,903	1,976,238
February:	Month	16,869,833	13,905,780	11,361,896	2,466,660	2,886,296	1,547,461	2,666,335	2,905,000	54,609,261
	Daily average	602,494	496,635	405,782	88,095	103,082	55,265	95,226	103,750	1,950,333
March:	Month	18,626,009	14,403,716	13,047,068	2,824,534	3,564,473	1,807,517	2,734,235	3,282,000	60,289,552
	Daily average	600,839	464,536	420,886	91,114	114,983	58,307	88,201	105,871	1,944,502
April:	Month	17,959,653	14,055,450	12,683,520	2,971,110	7,360,240	1,695,780	2,744,691	3,157,000	62,927,444
	Daily average	598,655	468,515	422,784	99,037	252,008	56,526	91,490	107,150	2,026,692
May:	Month	18,820,328	14,486,579	13,165,005	3,493,266	11,813,996	1,887,729	2,799,542	3,167,300	69,633,745
	Daily average	607,107	467,309	424,678	112,686	381,097	60,572	90,308	102,171	2,246,250
June:	Month	19,288,135	13,832,970	12,583,740	3,175,440	9,200,372	1,900,506	2,754,498	3,389,000	66,124,661
	Daily average	642,938	461,099	419,458	105,848	306,679	63,350	91,816	109,000	2,133,053
July:	Month	20,411,049	14,263,565	12,390,917	3,686,675	7,835,819	1,898,178	3,129,199	3,348,000	66,962,402
	Daily average	658,021	460,115	396,804	118,925	252,768	61,231	100,942	108,000	2,160,110
August:	Month	21,005,580	14,441,040	11,919,066	3,558,087	7,450,571	1,843,043	3,168,014	3,177,004	66,562,405
	Daily average	677,599	465,840	384,486	114,777	240,341	59,453	102,194	102,484	2,147,158
September:	Month	20,062,763	14,825,040	11,224,830	3,393,270	6,457,950	1,782,870	3,138,300	3,212,000	64,097,023
	Daily average	668,759	494,168	374,161	113,109	215,965	59,429	104,458	107,067	2,136,567
October:	Month	20,015,076	14,921,199	11,378,333	3,477,146	6,409,281	1,872,121	3,394,500	3,379,000	64,846,656
	Daily average	645,648	481,329	367,043	112,166	206,751	60,391	109,500	109,000	2,161,555
November:	Month	19,095,907	14,590,980	10,624,560	3,221,910	5,927,955	1,759,042	3,088,110	3,075,800	61,383,464
	Daily average	636,530	486,366	354,152	107,397	197,599	58,635	102,937	102,500	2,046,115
	Total 12 months	229,692,747	175,220,304	145,434,045	37,326,399	75,765,948	21,639,195	34,547,988	38,258,147	757,884,773
	Daily average	629,295	480,056	398,449	102,264	207,578	59,285	94,652	104,817	2,076,399

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